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ABSTRACT

Oklahoma Ag in the Classroom is a program of the Oklahoma Department of Agriculture and the Cooperative Extension Service that aims at providing educators with opportunities to help youth understand the importance of agriculture in everyday life. This book includes a collection of ready-to-use teacher guides and activity sheets that can be used to integrate agriculture into school subjects in such a way that students become "ag-literate" while learning language arts, reading, information skills, mathematics, science, social studies, and visual arts. The lessons in this book, targeted at grades K-2, are designed to supplement existing curricula and are arranged by subject matter area. The subject areas in this book include language arts, mathematics, reading, and information skills. Lessons are arranged by level of difficulty within each subject area and include the following: subject area, grade level, concept, commodity, learner outcome, learner objective, lesson, resources, evaluation, related activities, and student worksheets. A glossary, pattern pages, suggestions for requesting assistance, writing pages, and resource lists are included. (JRH)

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OKLAHOMA

AG IN THE CLASSROOM

K-2

BOOK 1

ED 401 099

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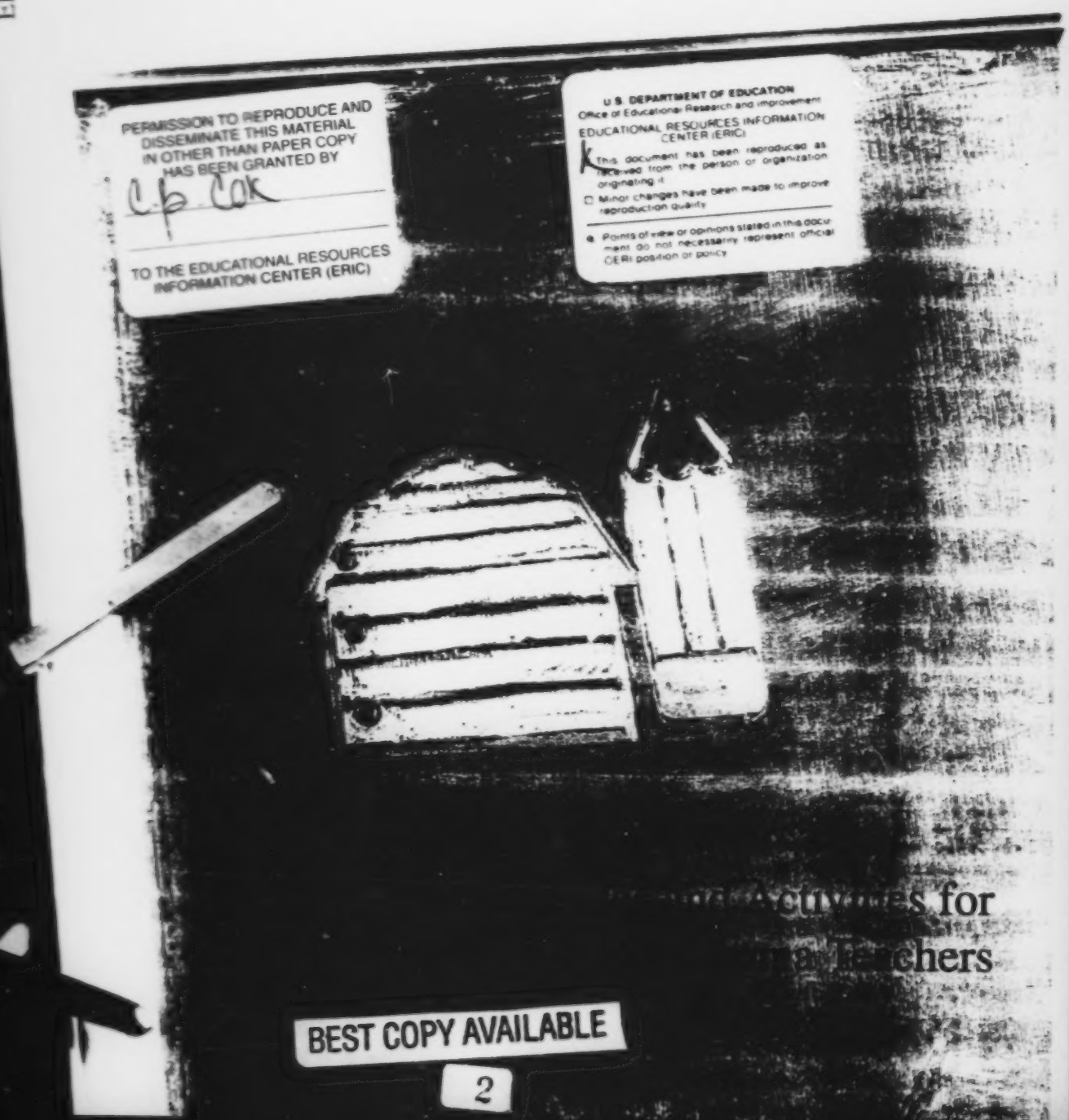

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AG IN THE CLASSROOM

STUDENT ACTIVITIES AND TEACHER GUIDES

GRADES K-2

Ag in the Classroom is jointly administered by the Oklahoma 4-H Youth Development Department, Cooperative Extension Service, and by the Oklahoma Department of Agriculture

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Purchasing Additional Copies

Additional copies of the Ag in the Classroom, Unit 1 (K-2) curriculum may be purchased by writing to the:

Oklahoma State 4-H Office
205 Poultry Science Building
Oklahoma State University
Stillwater, OK 74078

Attn: AITC Orders

The cost per two-book set for orders placed before June 30, 1994, will be $15. After that date check with the same address, or call (405) 744-8887 for current prices.

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Curriculum Development Team:

Project Supervisors: Charles Cox, Paul Czarniecki, Jim Rutledge, and JoDahl Theimer
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Writer/Editor: Pat Tsoodle
Graphics: Lori Williamson and Carolyn Plummer

Preface

Oklahoma Ag In The Classroom offers you, the educator, an opportunity to bring some "ag-citement" into your classroom. Our aim is to help youth understand the importance of agriculture in all our daily lives. We all can relate to food on the table and clothes on our backs, but how many people today really understand the essential food and fiber industries in Oklahoma and the United States?

This book includes a collection of ready-to-use teacher guides and activity sheets that will integrate agriculture into school subjects in such a way that students will become "ag-literate" as they learn language arts, reading, information skills, mathematics, science, social studies, and visual arts.

Why agricultural literacy for all students?

Only a few generations ago nearly everyone was involved in agriculture. In many cases, the whole family--men, women, and children--were involved in the farm or ranch. Even in recent times many youth who lived in cities had grandparents or other relatives who still lived on the farm or had rural ties. Today less than three percent of the population is directly involved in agricultural production. Fewer and fewer Americans are tied to the land, and fewer and fewer students are pursuing agricultural careers.

For this reason too many people today have no idea how their food gets on the table, even though all of us still depend on the land for our survival. Our survival, and that of the world, depends almost entirely on agriculture and its ability to produce the necessary food and fiber to feed and clothe us.

Agriculture is the most basic and essential enterprise of our society. It is agriculture that converts natural resources--soil, water, air, sunlight, and minerals--into the foods that nourish us and keep us healthy. If we manage these resources properly they will sustain us forever.

Few Oklahomans are aware of the role agriculture plays in our state's economy. We have 32 million acres in agricultural production. Twenty-seven percent of Oklahoma's work force is involved in employment related to agricultural production, processing, or marketing. Agriculture is important to every citizen in Oklahoma because it is as essential to our fiscal health as it is to our physical health.

The efficiency of American agriculture gives us most of the luxuries we enjoy. Less than three percent of the work force in the United States produces the food it takes to feed all of us and part of the rest of the world. American farmers account for over seven percent of the nation's productivity, making them the most productive segment of the American work force. Farmers provide the safe and economical food supply that allows the other 97 percent to concentrate on the other important enterprises. These enterprises--medicine, computer and information technology, space exploration, and industrial technology and production--are the ones that make us world leaders.

Tomorrow's citizens, consumers, business leaders, legislators, and educators must be agriculturally literate in order to protect and preserve the advantages we gain from a strong agriculture. Even though most of our citizens will continue to live in cities, all of us will continue to be dependent on agriculture for the most essential things in our lives. Building that essential literacy is the purpose of *Oklahoma Agriculture In the Classroom.*

Organization of Materials

The *Oklahoma Ag in the Classroom* lessons are intended to supplement existing curricula and are, thus, arranged in this guide by subject matter area. Within each subject area the lessons are arranged by level of difficulty. The lessons that cover the complete grade level range are listed first, followed by specific grades.

Each of the *Oklahoma Ag in the Classroom* lessons is presented in a similar format. Two books are used to contain the lessons for Kindergarten through Grade Two lessons. The body of each lesson usually consists of these components:

Subject Area Most lessons are interdisciplinary; however, a designation is offered to assist educators in finding activities which correspond with a particular subject. The designation is not intended to indicate that a lesson is appropriate solely in the designated subject matter area.

Grade Level This is an approximation of the maturity level likely to be appropriate for the lesson. Lessons can be easily adapted for use at higher or lower levels than are listed on the lesson.

Concept There are six primary *Oklahoma Ag in the Classroom* concepts that support the curriculum. The concept numeral refers the teacher to the primary concept area taught in the lesson.

Commodity This is the major agricultural discipline or enterprise used to provide the background information needed to teach the lesson.

Learner Outcome Each of the *Oklahoma Ag in the Classroom* lessons is supported by a Learner Outcome Competency of the Oklahoma State Department of Education for the specific grade level indicated. While this designation is offered, other outcomes may also be appropriate.

Learner Objective This is a statement of the specific learning outcome anticipated through use of the lesson.

Lesson This is an explanation, in a step-by-step format, of the instructional procedure. The background section is generally intended to provide the instructor with additional information about the commodity used in presenting the subject. In some cases the step-by-step may request that the background be shared before presenting the lesson. At other times it may be used as enrichment information for the instructor to share.

Resources There are many resources available that can help bring a lesson to life. The resource list provides titles of books and other resources that are available for lesson enrichment. The list is not intended to be all inclusive. When considering resources don't overlook local resources like farm groups, commodity groups, agri-business, and agricultural educators.

Evaluation This section lists some considerations for evaluating the effectiveness of the lesson. The evaluation is usually not a written evaluation but may be based upon teacher observations or learner participation.

Related Activities These activities offer support to the lesson or provide an alternative offered to accomplish the stated objective. Although the purpose of the related activity is the same as the lesson, each is different enough that the teacher may wish to use both.

Student Worksheets Many of the lessons in this unit are supported by student worksheets. Instructions for their use are included in the lesson section of the teacher guides.

Appendices This section includes a glossary, pattern pages, resource lists, and cross reference indices by commodity, concept, grade level, and lesson title.

How To Respond

Please let us know what you think of the *Oklahoma Ag in the Classroom* program by sending us your written comments at least yearly. You may do this individually, or as a group of teachers in your local school.

We would like to know which lessons work well and which ones don't work so well in your classroom. We would like to know if the lessons are appropriate for your grade level, if the lessons are effective in helping reach the assigned learner competencies, and if the background is helpful.

We would also like to hear from you regarding other lessons that might be added to the series in the future. In other words if you have created other ag-related lessons or if you have added related activities to a lesson, we ask that you share that information so it can be passed on to others.

For reporting purposes we would also like to know how many students were served by *Oklahoma Ag in the Classroom* in your school setting.

This program is facilitated locally by your county OSU Cooperative Extension Service staff and volunteer facilitators that represent various agricultural and natural resource interests in your area. You may also be asked by this group to assist in local program evaluation. Your cooperation and response will help to assure the long term success of this educational effort.

To contact a program facilitator in your area, contact your county OSU Cooperative Extension Service office. The Cooperative Extension Service is funded by a cooperative agreement of the United States Department of Agriculture, Oklahoma State University and County Commissioners. The phone number of the office serving your area can generally be found under the "county government" section of your directory. This program was developed by Oklahoma State University, 4-H Youth Development Department. Questions, comments or suggestions should be addressed to:

Ag in the Classroom Coordinator
Oklahoma 4-H Youth Development Office
205 Poultry Science Building
Oklahoma State University
Stillwater, OK 74078

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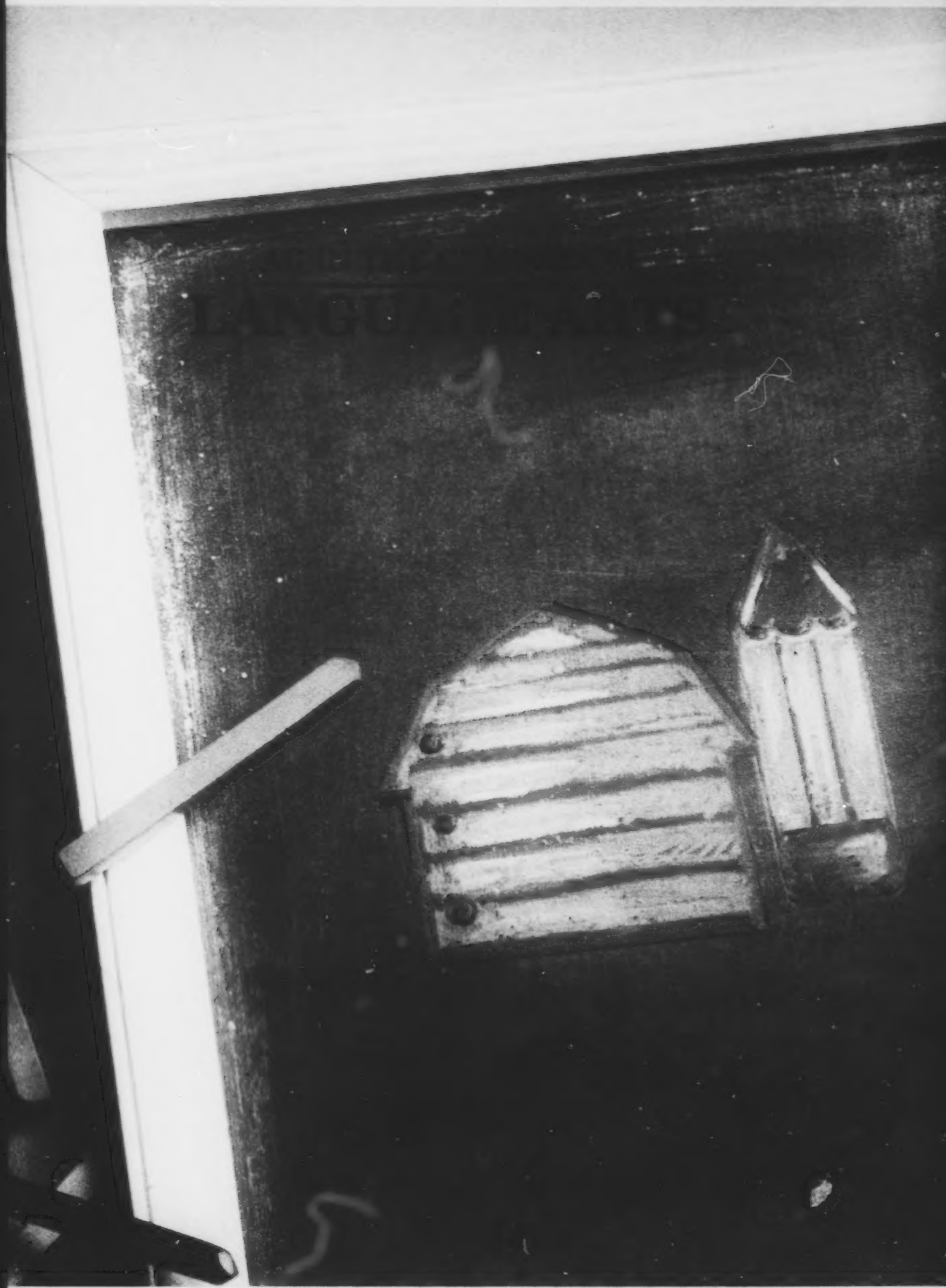

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AG - WHAT IS IT?

LA 1

SUBJECT: Language Arts

GRADE: K-2

CONCEPT: I

COMMODITY: Miscellaneous

LEARNER OUTCOME

Grade Two: III. C. The student will recognize that language has many uses.

LEARNER OBJECTIVE

To acquaint students with the term "Ag" and the national "Ag in the Classroom" logo.

LESSON

A. Step-by-Step Instructions

1. Introduce the term "Ag." Ask students to say what they think it means. Accept all reasonable answers.
2. Share the background information with students.
3. Hand out the worksheet that is best suited to your classroom needs. The barn in **Worksheet A** has no lines. Students may design their own barn fronts, including windows, doors, etc. The barn on **Worksheet B** has notepaper lines. Have students use this page to write the definition of agriculture or to list farm-related terms.
4. After students have completed the student worksheets, ask, *Do you remember what Ag means?* If they don't remember, explain that they will learn more about agriculture as they complete the lessons in the Ag in the Classroom book.

B. Background

What is "Ag?" It is a short form of the word, "agriculture." So what is agriculture? Agriculture is a science. It has to do with growing plants and animals that are used for food, clothing, shelter, or recreation for people. Did you know the blue jeans you wear and the paper you draw on both came from plants. Have you ever thought about the hamburger you like to eat? The bun comes from wheat. The meat comes from beef cattle. And the lettuce, pickles and tomatoes all come from vegetable plants. Agriculture provides many other things that touch our lives daily.

The picture on your student worksheets is the national Ag in the Classroom logo. This picture is also part of the Oklahoma State Ag in the Classroom logo. You can find the Oklahoma logo on the bottom right corner of all your student worksheets. The pencil represents a silo. Silos are used on dairy farms to store grain for feeding milk cows. The barn with lines and spiral holes looks like school paper ready to place in a notebook.

Source: OSU Division of Agricultural Sciences and Natural Resources

C. Resources

Books

Brown, Craig, *My Barn*, Greenwillow, 1991.

Brown, Margaret Wise, *Big Red Barn*, Random House, 1989.

Emberley, Ed, *Ed Emberley's Little Drawing Book of Farms*, Little, Brown & Co., 1980.

Lindbergh, Reeve, and Susan Jeffers, *Benjamin's Barn*, Dial Books for Young Readers, 1990.

Martin, Bill, Jr., and John Archambault, *Barnyard Dance*, Henry Holt, 1986.

Additional Resources

"My Family Farm," Illinois Farm Bureau Field Division, 1701 Towanda Ave., Bloomington, IL 61701 (bulletin board kit for grades 1-3, $4.75).

D. Evaluation

Does the student understand the term "Ag" and what it represents? Did the student enjoy completing the worksheets designed for this lesson?

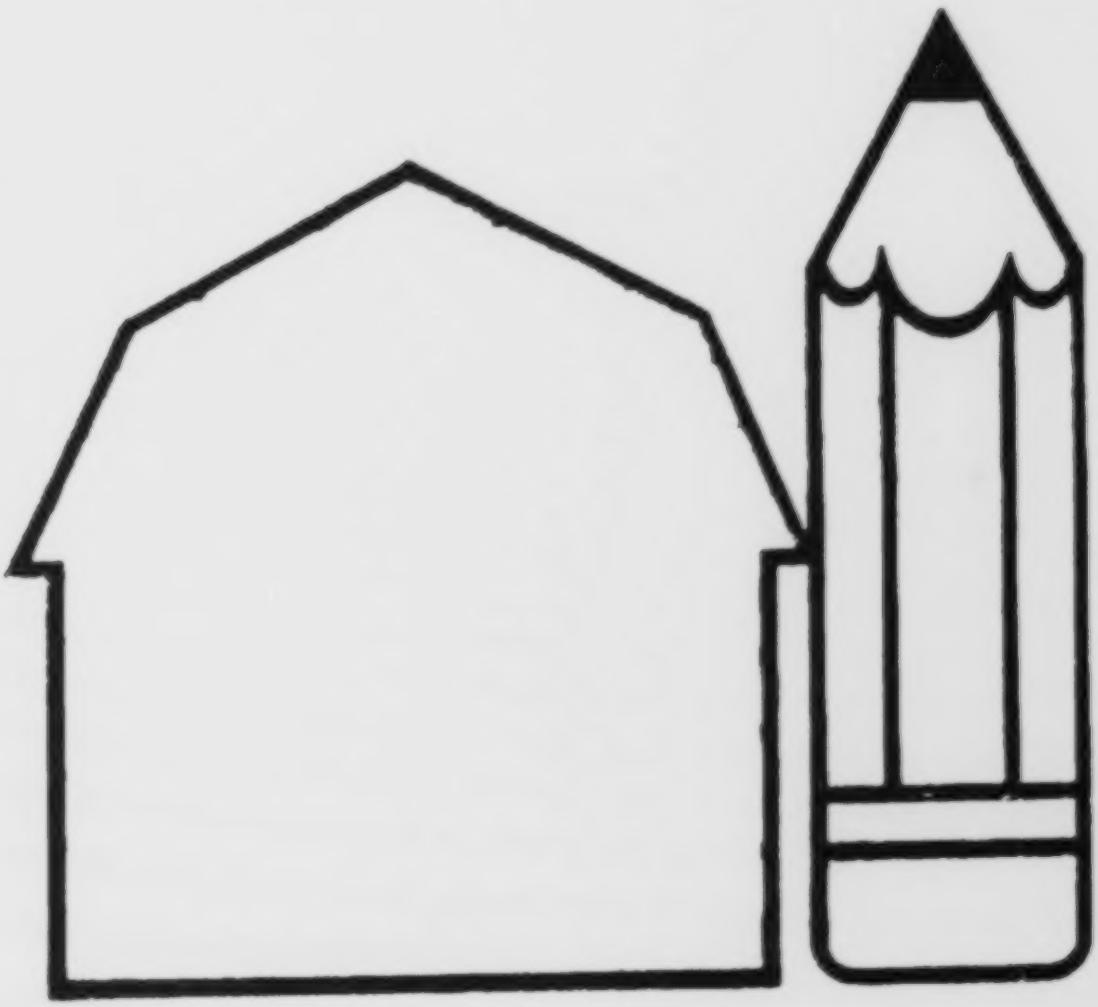
E. Related Activities

1. Have students add farm animals, fences etc. to Worksheet A.
2. Discuss logos. What are they, how are they used, what are some common ones? (McDonald's golden-arches, the Disney Network's Mickey Mouse, etc.)
3. Have each student design a logo or crest that represents themself. After sharing about the logos, display them.

Name _____

Ag—What Is It? A

Draw windows and doors on this barn to make it look the way you think a barn should look.



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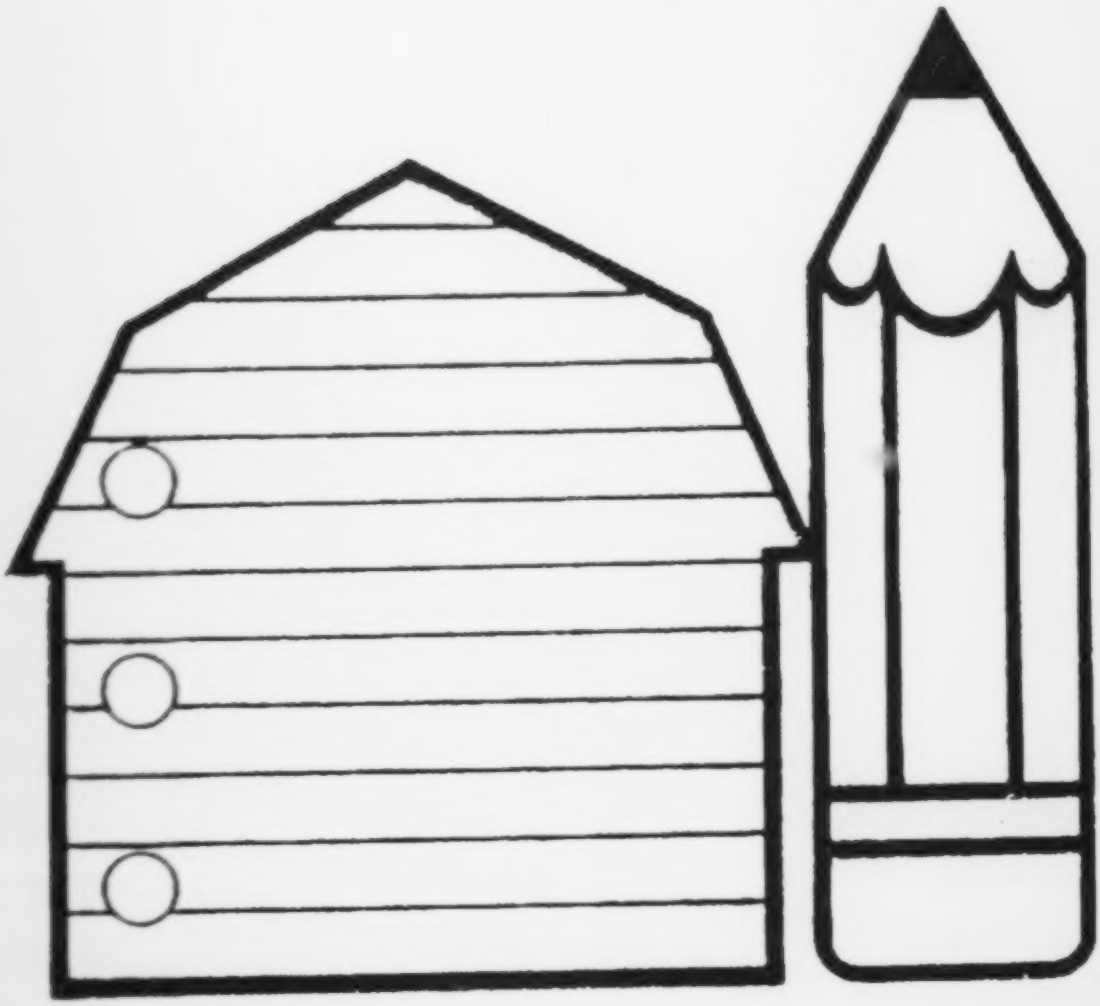
Name _____

Ag—What Is It? B

Write the definition of agriculture on the barn's lines or make a list of farm words.



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LISTEN AND LEARN

LA 2

SUBJECT: Language Arts

GRADE: K-2

CONCEPT: I

COMMODITY: Miscellaneous

LEARNER OUTCOME

Grade One: I. A. The student will learn to listen courteously and retell a story or idea.

LEARNER OBJECTIVE

The student will listen to the oral directions given by the teacher and complete the student worksheets accordingly.

LESSON

A. Step-by-Step Instructions

1. Hand out student worksheet (A, B or C) and instruct students to listen and follow the oral instructions given below.

Worksheet A

Line 1 - *Put a circle around the chick facing to the left.*
Line 2 - *Put a box around the calf facing to the left.*
Line 3 - *Put an "X" on the hen facing to the right.*
Line 4 - *Put a circle around the tractor driving to the right.*
Color the remaining animals or machines.

Worksheet B

Line 1 - *Put a circle around the picture of the food that you can crack, hard-boil or dye.*
Line 2 - *Put a box around the tractor facing forward.*
Line 3 - *Put an "X" on the carton you pour something out of.*
Line 4 - *Put a line under a building that can have animals, equipment or hay put in it.*

Worksheet C

Put an "X" on the animal name of the mommy, daddy, or baby.
Line 1 - *Put an "X" on the lamb.*
Line 2 - *Put an "X" on the goose.*
Line 3 - *Put an "X" on the bull.*
Line 4 - *Put an "X" on the chick.*

B. Background

All the items pictured on these worksheets can be found on Oklahoma farms.
Worksheet C - The following terms are names for the male, female and offspring of the animals pictured on the worksheet.

Line 1 - "ram," "ewe," "lamb"
Line 2 - "gander," "goose," "gosling"
Line 3 - "bull," "cow," "calf"
Line 4 - "rooster," "hen," "chick"

C. Resources

Books

Brown, Margaret Wise, *Baby Animals*, Random House, 1989.
Brown, Margaret Wise, *Big Red Barn*, Random House, 1989.
Cousins, Lucy, *Farm Animals*, Tambourine, 1991
Emberley, Ed, *Ed Emberley's Little Drawing Book of Farms*, Little, Brown, 1980.
Gibbons, Gail, *Farming*, Holiday House, 1988

D. Evaluation
A teacher-created answer page would be best suited for these worksheets.

E. Related Activities
1. Play the game "Simon Says" to reinforce the concept that a person must listen to directions carefully to complete a task.

Name _____

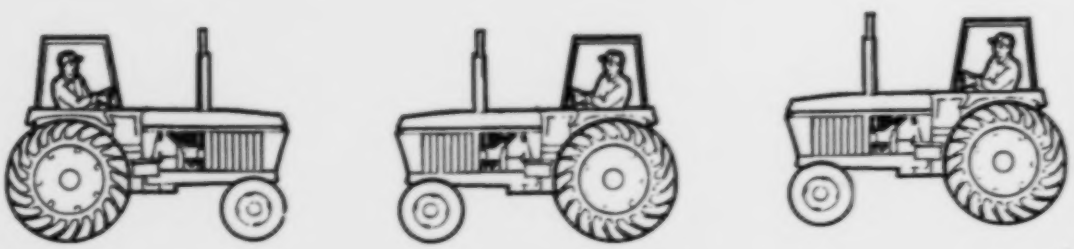
Listen and Learn A

Listen to the directions.

1.

2.

3.

4. 

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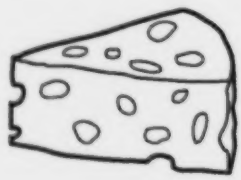
Name _____

Listen and Learn B

Listen to the directions.

1.



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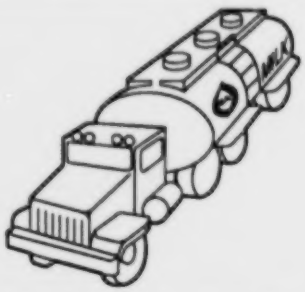
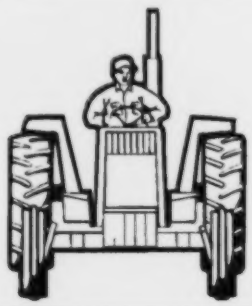
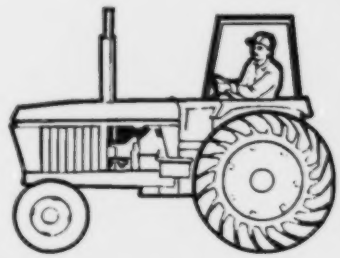
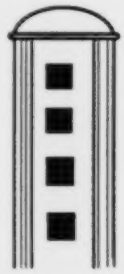


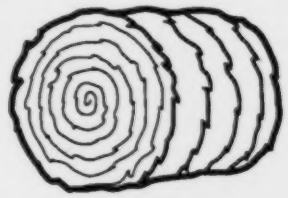




3.

4.





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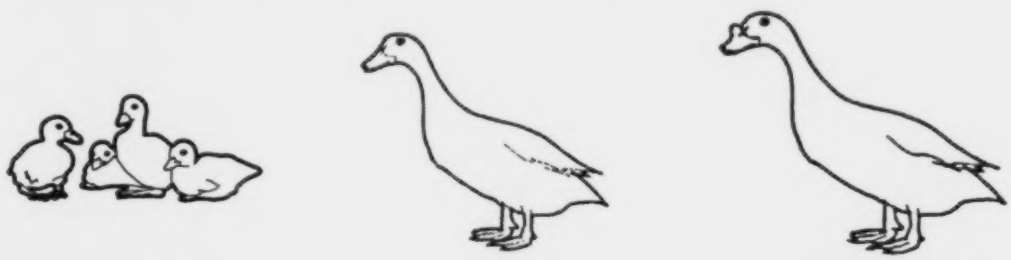
Name _____

Listen and Learn C

Listen to the directions.

1.

2.



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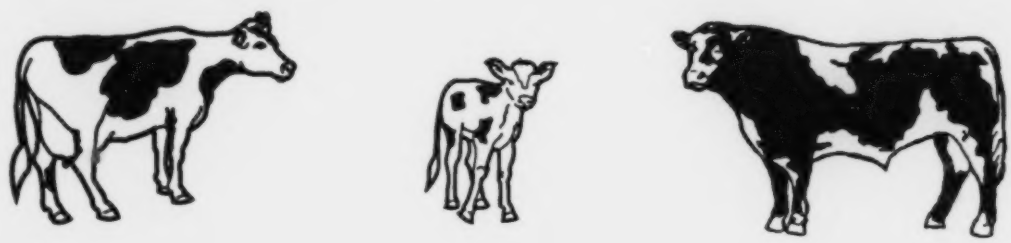

4.

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Ag in the Classroom

LISTENING TO DIRECTIONS LA 3

SUBJECT: Language Arts **GRADES:** K-2

CONCEPT: I **COMMODITY:** Miscellaneous

LEARNER OUTCOME

Kindergarten: Listening Skills. 3. The student will learn to follow simple oral directions.

LEARNER OBJECTIVE

The student will view farm objects or products made from farm animals and will follow the oral instructions given by the teacher.

LESSON

A. Step-by-Step Instructions

Hand out the student worksheets. There are three sets of directions for the one worksheet. Each set is designed for a different learning level, although the same worksheet is used for all exercises. The degree of difficulty increases from the first to the last, with the first exercise being the simplest and the last being the most difficult for your students.

Simple

1. *Circle the hamburger on line one.*
2. *Draw a line under the hairbrush on line two.*
3. *Put a rectangle around the ice cream cone on line three.*
4. *Put an "X" over the cow on line four.*

Moderately Difficult (make sure each student has a red, yellow and blue crayon.)

1. *Put a red "X" on the ice cream bar on line one. Draw a yellow square around the milk carton on line one. Put a blue line under the hamburger on line one.*
2. *Draw a yellow circle around the radish on line two. Put a red line above the honey bee on line two. Make a blue "X" on the hairbrush on line two.*
3. *Make a red line under the cheese on line three. Put a blue square around the bacon on line three. Draw a yellow circle around the ice cream cone on line three.*
4. *Put a blue line above the ducklings on line four. Make a yellow "X" on the cow on line four. Draw a red square around the tractor on line four.*

Most Challenging

1. *Circle the two things on line one that are made from milk.*
2. *Circle the two things on line two that you will find in the garden during the summertime.*
3. *Circle two things on line three that you do not have to cook before you eat them.*
4. *Circle the two farm animals on line four.*

After students complete all three exercises, have them color the pictures.

B. Background

Everything pictured on the student worksheet can either be found on an Oklahoma farm or is made from Oklahoma farm products.

C. Resources

Books

Adams, Pam (illus.), *Old MacDonald Had a Farm,* Child's Play, 1991.
Amery, Heather, *On the Farm,* Usborne, 1984.

Cartwright, Stephen (illus.), *Apple Tree Farm,* Usborne, 1991 (press-out model.
Tresselt, Adam, *Wake Up, FARM!* Lathrop, Lee, and Shepard, 1991.

Additional Resources

"Dairy Information," California Milk Advisory Board, Communications Services, P.O. Box 4680, Modesto, CA 95352 (lesson plans, posters, etc.).
"Happiness is Being a Farm Family," National Farmers' Union, Education Department, P.O. Box 2251, Denver, CO 80251.

D. Evaluation

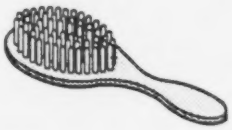
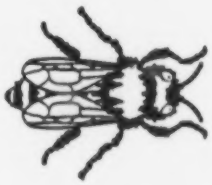
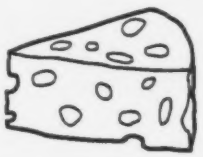
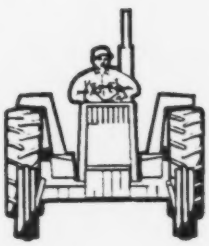
Score each student worksheet, using an answer key you have prepared ahead of time.

E. Related Activities

1. Bring samples of the edible items pictured on the student worksheet and allow students to taste them.
2. Set up a display featuring some of the items from the student worksheet (hairbrush, radish, etc.).

Name _____

Listening to Directions

1.		
2. 		
3.		
4. 		

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COLORS ON THE FARM

LA 4

SUBJECT: Language Arts

GRADE: K

CONCEPT: I

COMMODITY: Miscellaneous

LEARNER OUTCOME

Kindergarten, Literacy Skills Related to Reading: 2. The student will learn to identify and name shapes, sizes and patterns.

LEARNER OBJECTIVE

Students will learn to follow directions concerning what colors to color the farm objects.

LESSON

A. Step-by-Step Instructions

1. Review basic colors with your class by holding up difference colored objects or color cards and asking student to identify the colors.
2. Hand out student worksheets, and discuss the pictures with your class.
3. Instruct students to lay out the eight crayons they will need to complete the worksheet.

B. Background

Student Worksheet A - All the things pictured on this worksheet can be found on an Oklahoma farm or are made from Oklahoma farm animals. The shoe leather for the shoes in #4 is made from cow hides. The bristles for the hairbrush shown in #6 may be made from pig's hair. The ladybug in #7 is the farmer's friend. Ladybugs eat pests that can harm the farmer's crop.

Student Worksheet B - All the things pictured on this worksheet can be found on an Oklahoma farm or are made from Oklahoma farm animals. The milk tank truck in #3 will visit a dairy farm every one or two days to pick up the fresh milk. The monarch butterflies in #6 like to eat milkweed, which grows in the pastures and fields of Oklahoma farms.

Source: OSU Division of Agricultural Sciences and Natural Resources

C. Resources

Books

Adams, Pam (illus.), *Old MacDonald Had a Farm,* Child's Play Ltd., 1975.

Arvetis, Chris, and Carole Palmer, *Why Do leaves Change Color?* Rand-McNally, 1986.

Arvetis, Chris, and Carole Palmer, *Why Is the Grass Green?* Rand-McNally, 1985.

Carle, Eric, *The Grouchy Ladybug,* Harper Trophy, 1977.

Additional Resources

"Color It Corn," Nebraska Corn Board, 301 Centennial Mall South, P.O. Box 95107, Lincoln, NE 68509 (23-page coloring book for grades 1-4, one copy free, with permission to photocopy).

D. Evaluation

Did the students color the pictures the correct colors?

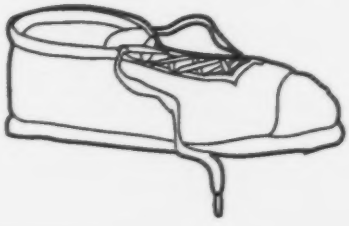
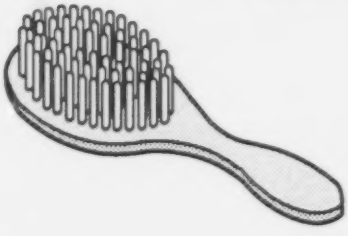
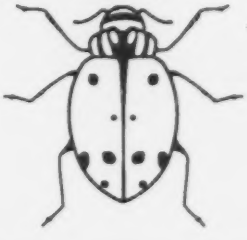
E. Related Activities

1. Set up days of the week in which to study each of the colors used on the student worksheets. For example, on "red day" ask students to wear red, serve apple slices as a snack, read a book about something red *(Little Red Riding Hood, The Little Red Hen).*

Name _____

Colors on the Farm A

Color the pictures.

1. tomato red	2. dog brown
3. carrot orange	4. shoe red 
5. broccoli green	6. brush blue 
7. ladybug orange 	8. milk white

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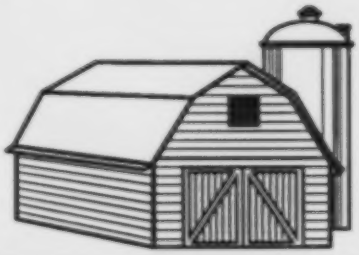
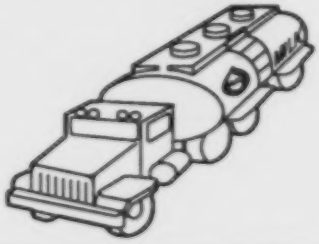
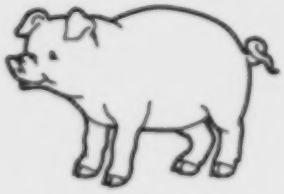
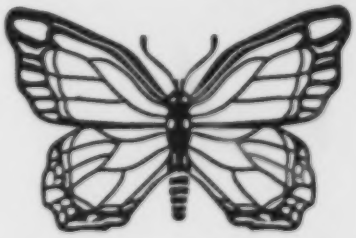
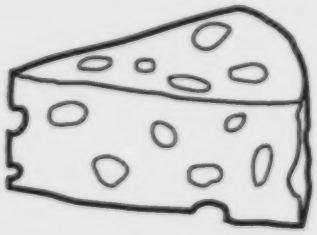
Name _____

Colors on the Farm B

Color the pictures.

1. barn red 	2. chick yellow
3. truck silver 	4. tree green
5. pig pink 	6. butterfly orange 
7. cheese yellow 	8. acorn brown

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CHECK YOUR CHICKENS

LA 5

SUBJECT: Language Arts

GRADE: 1

CONCEPT: I

COMMODITY: Poultry

LEARNER OUTCOME

Grade One: IB. Students will identify sound and symbol relationships.

LEARNER OBJECTIVE

Students will learn to match the correct words to pictures, showing the different life stages of chickens.

LESSON

A. Step-by-Step Instructions

1. Create picture/word cards with the words "hen," "egg," "rooster" and "chick" printed on them.
2. Create another word card with the letter "s" printed on it. Demonstrate what happens to the words on the cards when the "s" is added. Ask how the "s" changes the meaning of each word.
3. Share the background information about chickens with students.
4. Pass out student worksheets and make sure students understand the directions.

B. Background

Baby chicks hatch from eggs. The egg is kept warm, or incubated, for 21 days, until the baby chick gets big enough to break through, or "hatch." Chicks mature very quickly. As they mature, they lose their chick fuzz and grow pinfeathers. After that they start to look like the hen (mother) or the rooster (father).

Most chickens are raised in the eastern half of Oklahoma. The weather is milder there, with less ice and snow. People who raise chickens raise them in long metal houses. They raise thousands of chickens at a time.

Some of the things we use chickens for are meat, feathers, down (for pillows, beds, etc.) and for commercial egg production.

Chicken is low in calories and high in protein, something your body needs to help it grow healthy.

Source: OSU Cooperative Extension Service, Animal Sciences Dept.

C. Resources

Books

Kellogg, Steven, *Chicken Little*, Mulberry, 1985.
Potter, Tessa, and Donna Bailey, *Chickens and Eggs*, My World Books, Steck-Vaughn, 1990.
Potter, Tessa, *Chickens on the Farm*, My World Books, Steck-Vaughn, 1990.
Tresselt, Alvin, *Sun Up*, Lothrop, Lee & Shepard, 1991.
Yoshi, *1,2,3*, Picture Book Studio, 1990.

D. Evaluation

Were the words correctly matched with the pictures?

E. Related Activities

1. *Chicken Yard Play* - Divide the class into two sections. Have half make the sounds of chickens while the other half demonstrates how a chicken walks and

behaves.
2. *Wishbones for Christmas* - Save wishbones. Wash them, dip them in glue and sprinkle them with glitter, or paint them. Glaze them with a sealant, and use them as Christmas decorations.
3. *Fluffy Chicken Art* - Place white cotton balls in a bag with dry, yellow tempera paint. Shake the bag. Make a fluffy chick by filling in the outline of a chick with yellow cotton balls.

Name _____

Check Your Chickens

Match the words with the correct pictures.

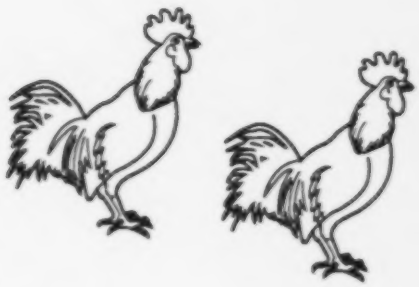
hens

chicks

egg

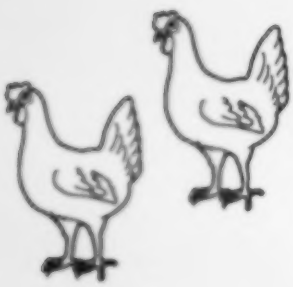
rooster

hen



chick

eggs



roosters

Can you tell a story with these words?

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DELICIOUS DAIRY

LA 6

SUBJECT: Language Arts

GRADE: 1

CONCEPT: I

COMMODITY: Dairy

LEARNER OUTCOME

Grade One: II. F. The student will learn to use the process approach to writing coherently, using appropriate conventions.

LEARNER OBJECTIVE

To associate dairy products with the dairy cow.

ACTIVITY

A. Step-by-Step Instructions

1. Discuss the concept of dairy products. Have students name some of their favorite dairy products.
2. Show students how to number the dairy items pictured in alphabetical order, e.g., put a "1" in front of the dairy item that would come first in the alphabet, etc.
3. Help your students associate the dairy cow with dairy products. Have them color the dairy products and the cows on the student worksheets.

B. Background

When milk first comes from the cow it is called "raw milk." Then it goes to the processing plant, where workers bottle it as whole milk or make it into other dairy products, like cheese, ice cream, butter, cottage cheese, chocolate milk and many other good things to eat and drink.

C. Resources

Books

McFarland, Cynthia, *Cows in the Parlor*, Atheneum, 1990.
McGee, Marni, *The Quiet Farmer*, Atheneum, 1991.
Ross, Catherine, and Susan Wallace, *The Amazing Milk Book*, Addison-Wesley, 1991.

Additional Resources

Associated Milk Producers, Inc., 1700 N. Sooner Rd., Oklahoma City, OK 73111.

D. Evaluation

The following words and pictures should be circled: milk; cow; cheese; butter; ice cream. The words should be placed in the following order: 1. butter; 2. cheese; 3. cow; 4. ice cream; 5. milk.

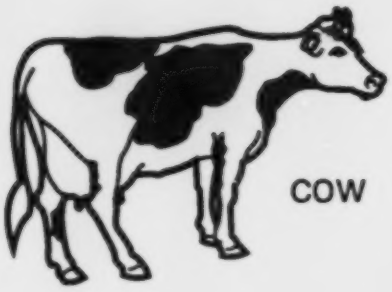
E. Related Activities

Bring in samples of dairy products for students to taste.

Name _____

Delicious Dairy

Circle the dairy words and pictures. Write the dairy words on the lines in ABC order.



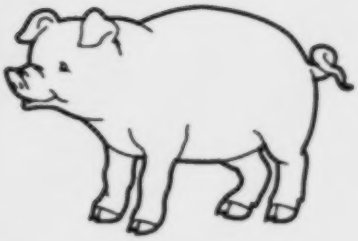
cow

ice cream

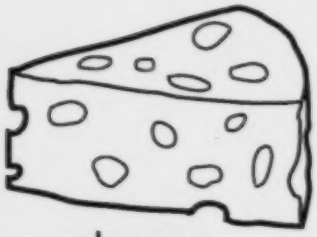
dog

butter

milk



pig



cheese

1. _____

2. _____

3. _____

4. _____

5. _____

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FARM ALPHABET

LA 7

SUBJECT: Language Arts

GRADE: 1

CONCEPT: I

COMMODITY: Miscellaneous

LEARNER OUTCOME:
Grade One: I B. The student will learn to identify sound and symbol relationships.

LEARNER OBJECTIVE
To sharpen the student's recognition of the alphabet and his ability to recognize items found or produced on Oklahoma farms.

LESSON

A. STEP BY STEP INSTRUCTIONS

1. Have students recite the alphabet.
2. Go through the alphabet, one letter at a time, and name a farm-related item beginning with each alphabet letter.
3. Assign each student a letter. Have them draw pictures illustrating farm items beginning with their assigned letters. Locate pictures to show to students if the items are not familiar.

B. BACKGROUND

Some things found on the farm will be familiar to your students while others will be unfamiliar. Use the list of farm-related words on the following page while reciting the alphabet with your students.

Source: U. S. Department of Agriculture, *A Glossary of Farm Terms*

C. RESOURCES

Books

Miller, Jane, *Farm Alphabet Book,* Scholastic, 1987.

Watson, Clyde, and Wendy Watson, *Applebet: An ABC Book,* Farrar, Strauss and Biroux, 1982.

Additional Resources

"A Glossary of Farm Terms," U.S. Department of Agriculture, May, 1988.

"Farm Animals, Close Up and Very Personal," Stage Fright Productions, P.O. Box 373, Geneva, IL 60134 (VHS tape, $16.95).

"Farm Life," Right On Programs, 755 New York Ave., Huntington, NY 11743 (Apple or Commodore software disk, $25, plus $4 for handling).

"Illinois Agriculture Bulletin Board Kit," Illinois Farm Bureau, Field Services Division, 1701 Towanda Ave., Bloomington, IL 61701 (for grades 1-3, $4.75).

D. EVALUATION

Were the students able to say the alphabet correctly? Were they enthusiastic when farm terms were added and they were allowed to illustrate what they had learned?

E. RELATED ACTIVITIES

1. At a higher level, practice spelling with farm-related terms.
2. Have students think of as many farm-related words as they can that begin with a certain letter.

FARM ALPHABET TERMS

A - ALFALFA, AX, ANIMAL, ACORN, APPLE
B - BARN, BEES, BUDGET, BIRD, BANK, BUTCHER, BEEF
C - CATFISH, CHEMICALS, COW, CORN, CARROT, CALF, COMMODITY, CATTLE, CARCASS, CHICKENS
D - DOG, DUCK, DAIRY COW, DRAINAGE, DISK
E - EGG, EROSION, ENVIRONMENT, EAR TAG, EWE
F - FENCE, FERTILIZER, FARMER, FUEL, FISH
G - GARDEN, GATE, GRAIN, GOAT, GROW, GRAZING, GRASS
H - HAY, HOGS, HEN, HORSE, HERD, HARVEST
I - INK, INSECTS, IRON, IRRIGATION, INCOME
J - JACKRABBIT, JAM, JELLY
K - KID, KITTEN, KEY
L - LAMB, LIVESTOCK, LEAF, LADYBUG
M - MANURE, MILK, MOON, MOUSE, MACHINERY, MONEY, MEAT
N - NUTS, NEST, NANNY GOAT
O - OATS, OIL, OWL, ONIONS
P - PECANS, PIGS, POULTRY, PUMPKIN, PRICE, PASTURE
Q - QUEEN BEE, QUILT
R - RAIN GAUGE, RAKE, ROAD, RABBIT, RAM, ROOSTER
S - SALT, SILO, SOYBEANS, SHEEP, SEED, SWINE, SPEND, SAVE, SELL
T - TRACTOR, TRUCK, TURKEY, TUMBLEWEED
U - UMBRELLA, UNDERGROUND
V - VACCINE, VEGETABLES, VEGETARIAN
W - WHEAT, WILDLIFE, WAGON, WHEEL, WATER
X - X-RAY
Y - YAMS, YARDS
Z - ZUCCHINI, ZINNIA

FARM TALK

LA 8

SUBJECT: Language Arts

GRADE: 1

CONCEPT: VI

COMMODITY: Miscellaneous

LEARNER OUTCOME

Grade One: V. C. The student will use the process approach to write coherently, using appropriate conventions.

LEARNER OBJECTIVE

The student will learn to spell and understand the meaning of agriculture-related words and to practice memorization skills.

LESSON

A. Step-by-Step Instructions

1. Hand out student worksheet. Discuss the words and their meanings with students. Have students tell where they have seen some of the items listed on the student worksheet.
2. Have students rewrite the agriculture-related words in the blanks, then learn to spell them.
3. After the students are familiar with the spelling of the words, test their memorization skills.

B. Background

Vocabulary

Barn - *A building on the farm where animals stay when it is cold and where farm equipment is stored.*

Cattle - *Dairy cows give milk, which becomes butter, cheese, ice cream and the milk we drink. Beef cattle are produced for meat. The meat is cut into steaks and roasts or ground into hamburger. Some breeds of cattle are used both for their milk and their meat.*

Truck - *A vehicle that carries milk from dairy farms. Milk trucks must be very clean. They are refrigerated to keep the milk cool until it arrives at the milk processing plant. Trucks also carry milk from the food processing plant to the grocery store. They carry all kinds of material all over the country. Farmers and ranchers use trucks of many different sizes. They use the trucks to carry feed and cattle from place to place. The trucks also help the farmer carry feed from town and cattle to town.*

Milk - *A liquid produced by cows. Milk from dairy cows goes from the dairy farm to the dairy plant. Workers at the dairy plant heat the milk to kill all the harmful bacteria. After that it is poured into cartons or made into butter, cheese, ice cream and many other products. Milk must stay cool or it will spoil.*

Source: *A Glossary of Farm Terms,* U.S. Dept. of Agriculture

C. Resources

Books

Amery, Heather, *What's Happening? On the Farm,* EDC Publishing, 1984.
Gibbons, Gail, *Farming,* Holiday House, 1988.
Henderson, Kathy, *I Can Be a Farmer,* Children's Press, 1987.
Ziegler, Sandra, *A Visit to the Dairy Farm,* Children's Press, 1987.

D. Evaluation

Are students able to correctly spell the words on the student worksheet?

E. Related Activities

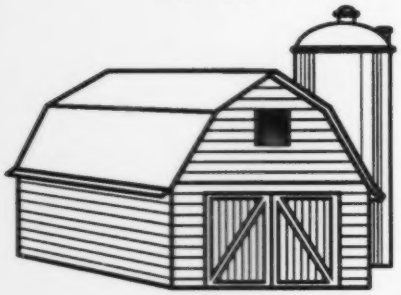
1. Create a list of farm-related words, and talk about what they mean.
2. Have students draw pictures, illustrating farm-related words.
3. Have students collect pictures of crops, farm machinery, farm or ranch animals, or products made from farm animals or crops.
4. Leave a glass of milk out in the classroom for a day or two. Have students look and smell *(do not taste)* the milk to see if it has spoiled. Use observations to discuss what it means when dairy products have "spoiled." Keep records showing how long it takes the milk to spoil.

Name _____

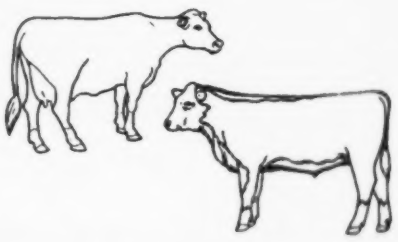
Farm Talk

Color the pictures. Copy the words above the pictures on the lines below the pictures. Learn to spell each word.

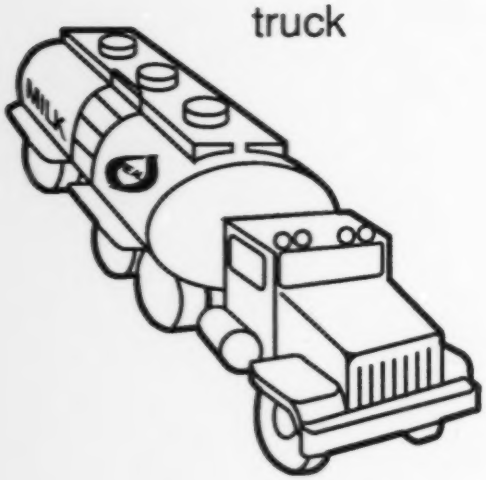
barn



cattle



truck



milk

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Ag in the Classroom

ABC FARM

LA 9

SUBJECT: Language Arts

GRADES: 1-2

CONCEPT: I

COMMODITY: Miscellaneous

LEARNER OUTCOME

Grade One: II. F. Students will learn to use the process approach to writing coherently, using appropriate conventions.

LEARNER OBJECTIVE

Students will find the farm terms in the word puzzle, then arrange them in alphabetical order at the bottom of the page.

LESSON

A. Step-by-Step Instructions

1. Review alphabetical order with your class.
2. Hand out student worksheets and read aloud the eight farm terms on the left and right sides of the page.
3. Have students find the farm terms in the word puzzle and arrange them in alphabetical order at the bottom of the student worksheet.

B. Background

Order is important on the farm. On a dairy farm every milk cow knows which cow it follows into the milking parlor.

The farm terms listed on your student worksheet are the names of things that can be found on farms throughout the state of Oklahoma.

Source: OSU Division of Agricultural Sciences and Natural Resources

C. Resources

Books

Amery, Heather, *What's Happening? On the Farm,* EDC, 1984.
Cartwright, Stephen, *Apple Tree Farm,* Usborne, 1991 (press-out model).
Emberley, Ed, *Ed Emberley's Little Drawing Book of Farms,* Little, Brown, & Co., 1980.
Gibbons, Gail, *Farming,* Holiday House, 1988.
McFarland, Cynthia, *Cows in the Parlor,* Atheneum, 1990.
Miller, Jane, *Farm Alphabet Book,* Scholastic, 1987.
Tresselt, Alvin, *Wake Up, FARM!* Lothrop, Lee & Shepard, 1991.

D. Evaluation

The teacher key is printed on the back of the teacher page.

E. Related Activities

1. Have your class brainstorm other words associated with farming.
2. Use farm words from the student worksheet to make a bulletin board display. Assign a word to each one or two students and have them write the word at the top of a piece of drawing paper. Then have them draw pictures to illustrate the word.

Name _____

ABC Farm (Answer Key)

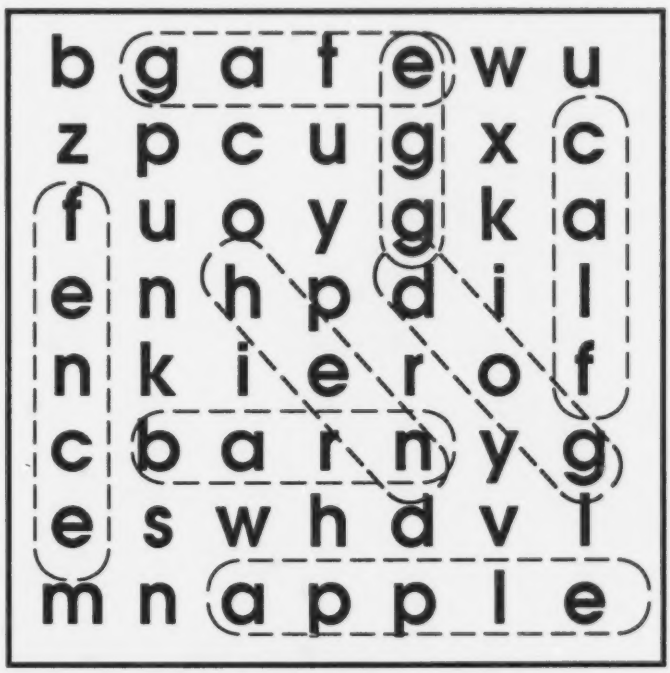
Circle these words in the puzzle.

calf

egg

apple

gate



barn

fence

hen

dog

Write the words in ABC order.

a- _____

b- _____

c- _____

d- _____

e- _____

f- _____

g- _____

h- _____

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Name _____

ABC Farm

Circle these words in the puzzle.

calf

egg

apple

gate

b	g	a	t	e	w	u
z	p	c	u	g	x	c
f	u	o	y	g	k	a
e	n	h	p	d	i	l
n	k	i	e	r	o	f
c	b	a	r	n	y	g
e	s	w	h	d	v	l
m	n	a	p	p	l	e

barn

fence

hen

dog

Write the words in ABC order.

a- _____

b- _____

c- _____

d- _____

e- _____

f- _____

g- _____

h- _____

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RANCH AND FARM BOOKLETS

SUBJECT: Language Arts

GRADES: 1-2

CONCEPT: II

COMMODITY: Miscellaneous

LEARNER OUTCOME

Grade Two: I. C. The student will learn to use context clues and nonverbal clues to aid comprehension of oral and written material.

LEARNER OBJECTIVE

Students will become aware of the difference between ranch operations and farm operations.

LESSON

A. Step-by-Step Instructions

1. Summarize the background material, following the booklet the class is using. Hand out the two booklets separately for the students to examine. Have the students color the pictures.
2. Have the class cut out and fold the pages, following the directions on the student worksheets.
3. Help students staple the booklets together, and read the caption on each page. Have the students write their names on their booklets.

B. Background

When we think of farming we think of a farm house, with a barn and possibly a chicken yard or pig pen nearby. We think of farm equipment parked to the side of the barn and rows of vegetables and green fields all around.

We think of the farm family getting up early and going to the barn to milk the cow or staying up late to get the harvest into the barn before the rains come.

When we think of ranching, we think of cowboys on horseback, moving cattle from pasture to pasture. Unlike the farmer, the rancher may have his house and barn many miles away from his animals. Cattle cannot stay in one place but must be moved from pasture to pasture so they always have plenty of grass to eat. Sometimes the rancher will drive his cattle with horses, and sometimes he will use an all terrain vehicle (ATV).

These days it's hard to tell the difference between a farmer and a rancher. A farmer who grows crops may also have a herd of cattle. A rancher who raises cattle may also grow alfalfa or some other crop to feed his animals.

In Oklahoma, some parts of the state are better for growing crops, and some are better for grazing cattle. The flatlands of central Oklahoma and southwestern Oklahoma are good for growing crops, so there are more farms in those parts of the state.

Southeastern Oklahoma is more rugged. It is difficult to grow crops there because the land is rocky and mostly covered with timberlands. But there is plenty of grass for cattle and sheep to eat, so there are more ranches there.

Many types of crops may be raised on a farm--pecans, wheat, vegetables, oats and many others. Some farmers raise more than one crop.

Ranchers normally raise only one kind of animal, usually beef cattle or sheep.

Source: OSU Division of Agricultural Sciences and Natural Resources

C. Resources

Books

Curran, Francois, *Hello, Farm Animals*, Troll, 1985.
Dineen, Jacqueline, *How People Live Farming*, Schoolhouse, 1986.
Easton, Patricia, *Stable Girl: Working for the Family*, Harcourt, Brace, Jovanovich, 1991.
Greene, Carla, *I Can Be A Farmer*, Children's Press, 1991.
Kaizuki, Kiyonnori, *A Calf is Born*, Orchard, 1990.

Additional Resources

"My Family Farm," Illinois Farm Bureau, Field Services Division, 1701 Towanda Ave., Bloomington, IL 61701 (bulletin board kit for grades 1-3, $4.75).

D. Evaluation

Did the students arrange the books in the correct order by following the numbered pages. Can students express one difference between a ranch and a farm.

E. Related Activities

Invite a rancher and a farmer to be a guest and explain his or her responsibilities.

Name _____

Ranch and Farm Booklets A

Read the sentences. Color the pictures. Cut out the pages. Fold the pages and staple them to student worksheet B.

cut

cut

The rancher takes care of the cattle.

2

fold

staple here

cut

cut

There are women ranchers in Oklahoma.

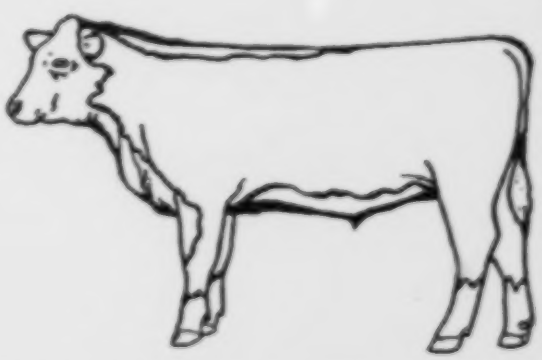
3

fold

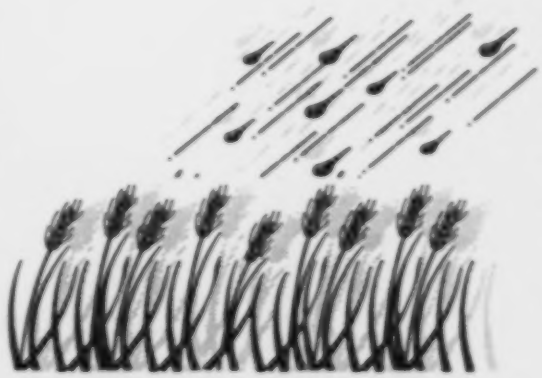
1

My Ranch

by _____



4



Wheat is growing to feed the animals in winter.

cut

cut

cut

cut

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Name _____

Farm and Ranch Booklets B

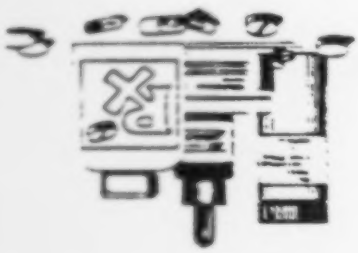
Read the sentences. Color the pictures. Cut out the pages. Fold and staple to student worksheet A to make a book.

cut

Some ranchers own horses to help with the work.

staple here

Ranchers work to keep their animals healthy.



7

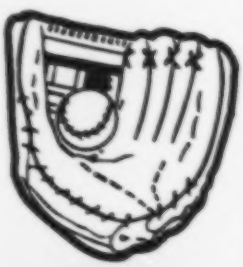
fold

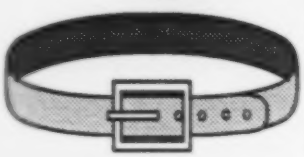
9

fold

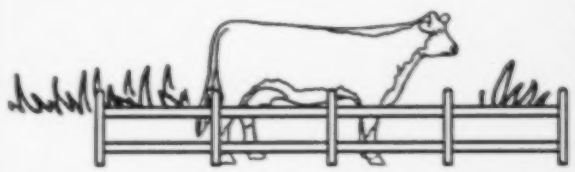
8

Many of the things we use are made from beef cattle.





5



Cattle eat wheat and other grasses.

cut

cut

cut

cut

cut

cut

fold

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Name _____

Ranch and Farm Booklets C

Read the sentences. Color the pictures. Cut out the pages. Fold the pages and staple them to student worksheet D.

cut

cut

staple here

fold

fold

fold

cut

cut

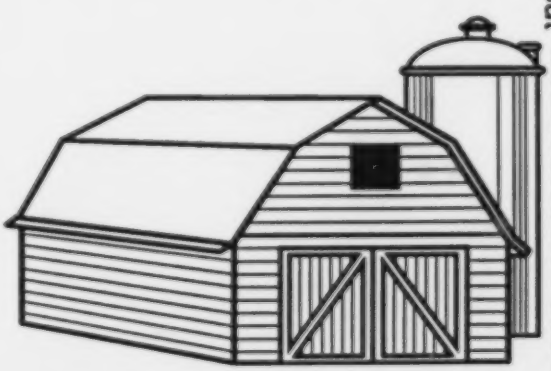
cut

cut

1

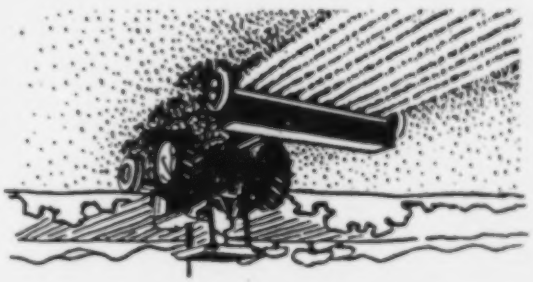
My Farm

by _____



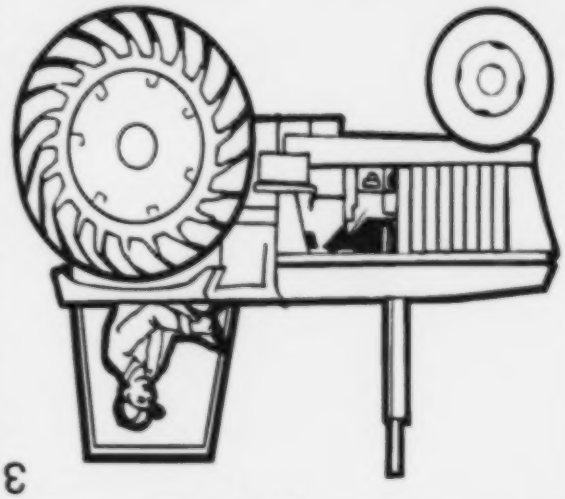
2

The farmer cares for the fields.



3

Farmers use tractors to do many different jobs.



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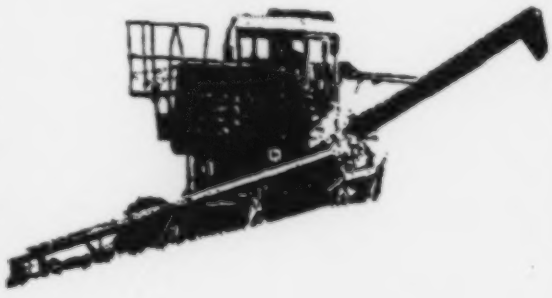

The farmer harvests the crops.

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Ag in the Classroom

Name _____

Ranch and Farm Booklets D

Read the sentences. Color the pictures. Cut out the pages. Fold the pages and staple them to student worksheet C.

cut

cut

cut

cut

staple here

fold

fold

fold

cut

cut

cut

cut

cut

7

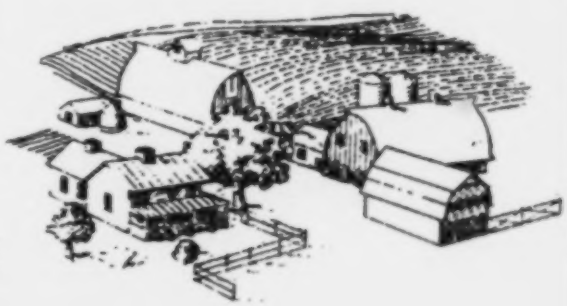
6

8

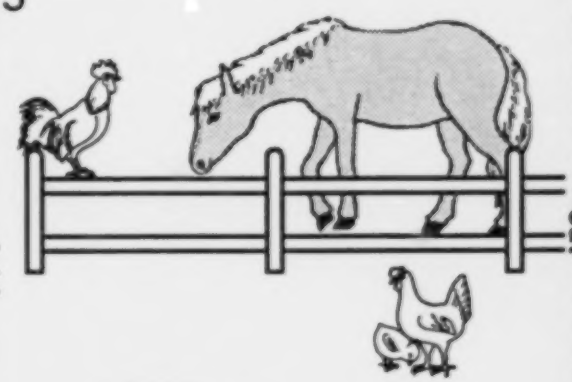
5

In our garden we grow many vegetables.

We own a cow that gives us fresh milk.



Our farm is a very busy place.



We have lots of animals here.

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THIS IS A COW

LA 11

SUBJECT: Language Arts

GRADES: 1-2

CONCEPT: I

COMMODITY: Beef

LEARNER OUTCOME:

Grade One: I. C. The student will attain a basic sight vocabulary and apply decoding strategies to other words encountered.

LEARNER OBJECTIVE

To familiarize children with five basic cattle-related words.

LESSON

A. Step-by-Step Instructions

1. Discuss the cattle-related vocabulary words with students. If possible, have pictures to show as examples.
2. Hand out student worksheet A, and have students place cattle-related words under the appropriate pictures.
3. Hand out student worksheet B, and read the sentences to students. Have them underline the vocabulary words in the sentences. Have students draw their own pictures, illustrating the vocabulary words.

B. Background

Vocabulary

Cow - a large farm animal raised for milk or meat.
Cattle - a group of beef or dairy animals.
Barn - a building where the cow's food is stored and where the cow stays when the weather is harsh.
Pasture - a large amount of land, covered in grass, where cattle graze.
Grass - the primary food source for cattle.
Crops - the plants farmers grow. Oklahoma farmers grow hay, corn, wheat and milo to feed to their cattle.

Source: *A Glossary of Farm Terms*, U.S. Department of Agriculture

C. Resources

Books

King, P. E., *Down on the Funny Farm*, Random House, 1986.

Additional Resources

Good Apple Catalog, 1204 Buchanan St., Box 299, Carthage, IL 62321-0299, 1-800-435-7234 (farm animals poster, #GA1371, for grades K-2, $6.25 for the first 25, 25 cents for each additional).

"Happiness is a Cow," Shirley A. Domeier, Rt. 2, Box 77, New Ulm, MN 56073 (24-page coloring book, 50 cents each, with a minimum order of 20).

"Happiness is a Cow II," Shirley A. Domeier, Rt. 2, Box 77, New Ulm, MN 56073 (24-page coloring book, 50 cents each, with a minimum order of 20).

Oklahoma Beef Industry Council, 5101 N. Classen, Ste. 210, Oklahoma City, OK 73118, (405)840-3777.

"Our Friend Herfy," Nebraska Hereford Auxiliary, c/o Meneda Phifer, Rt. 1, Mason City, NE 63355 (32-page storybook for preschool and K-3, $4, plus 90 cents for postage and handling).

D. Evaluation

Were the cattle words matched correctly to the pictures? Were the students able to locate and underline the same words in a paragraph about cattle? Did they draw their own cattle-related word pictures?

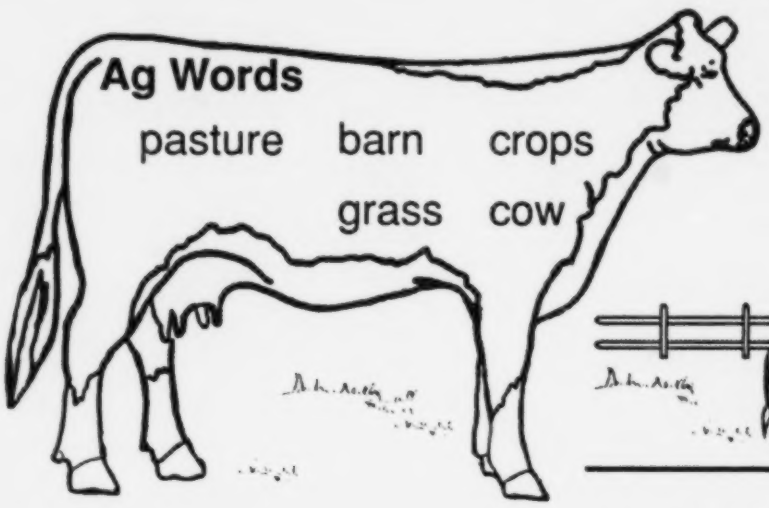
E. Related Activities

1. Have students copy the sentences on student worksheet B for a handwriting lesson.
2. Have students name the vowels in the vocabulary words.

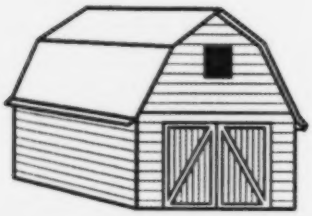
Name _____

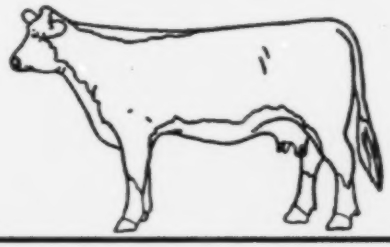
This is a Cow

A



Write the "Ag" words under the right pictures. Color the pictures.





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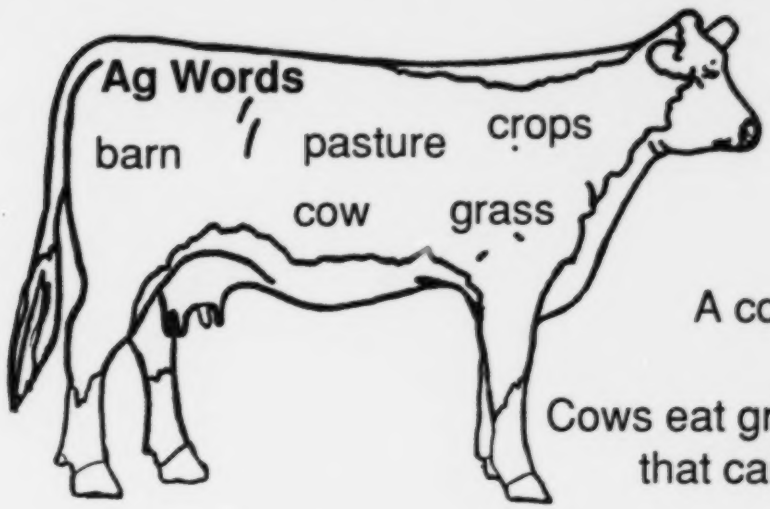
Name _____

This is a Cow B

Underline the Ag words in the sentences below.



This is a cow.

A cow eats grass.

A cow's home may be a barn.

A cow's yard is a pasture.

Cows eat grass in some pastures that cannot grow food crops.

Draw pictures of two of the "Ag" words listed at the top of this page.

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WHICH CAME FIRST, THE CHICKEN OR THE EGG?

LA 12

SUBJECT: Language Arts

GRADES: 1-2

CONCEPT: I

COMMODITY: Poultry

LEARNER OUTCOME

Grade Two: II. F. The student will learn to use the process approach to writing coherently, using appropriate conventions.

LEARNER OBJECTIVE

The student will place a series of poultry-related words in alphabetical order. The student will be able to complete the line of a given pattern.

LESSON

A. Step-by-Step Instructions

1. Discuss word order. What does it mean to the students. Tell students they will be using the idea of order during the activity.
2. ***Student Worksheet A*** - Discuss directions for alphabetizing.
3. ***Student Worksheet B*** - Have the students fill in the patterns by drawing what should come next. On the last two lines the student should write the word that follows the pattern.

B. Background

Order - to arrange to a certain scheme.

Order is important on the farm. Farmers know they must first plant the seeds, then water them, then care for the plants before they will turn into food.

Farm animals learn order, too. In fact, on a dairy farm, the cows know the order in which the farmers milk them.

Source: OSU Cooperative Extension Service, Animal Science Department

C. Resources

Books

Heine, Helme, *The Most Wonderful Egg in the World,* Aladdin Books, 1983.
Lillie, Patricia, *When the Rooster Crowed,* Greenwillow, 1991.
Polacco, Patricia, *Just Plain Fancy,* Bantam, 1990.
San Souci, Robert D., *The Talking Eggs,* Scholastic, 1989.
Tresselt, Alvin, *Sun Up,* Lothrop, Lee & Shepard, 1991.

Additional Resources

Good Apple, 1204 Buchanan St., Box 299, Carthage, IL 62321-0299 (farm animals poster, GA1371, 25 for $6.25, additional quantities, 25 cents each.

D. Evaluation

Worksheet A - Correct answers are as follows: 1. barn; 2. chicken; 3. egg; 4. hen; 5. rooster; 6. shell; extra words - 1. beak; 2. chirp; 3. embryo; 4. hatch; 5. peep; 6. yoke.

E. Related Activities

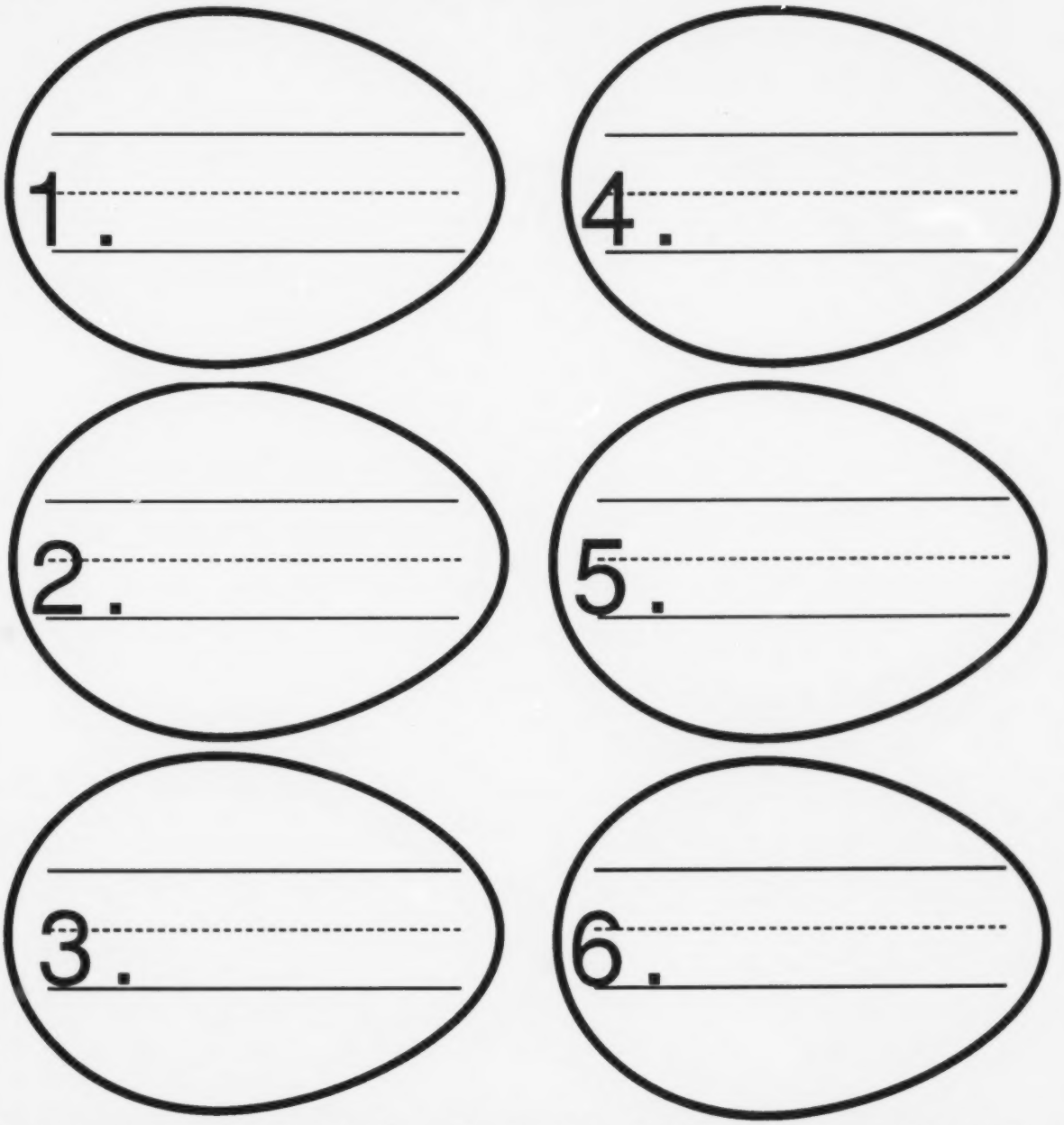
1. Have students line up in alphabetical order by the first one or two letters of their

names.
2. For students with limited reading skills, make a set of picture cards. Print the first letter of the word for the picture on each card. Students can use the cards to practice alphabetizing skills.

Name _____

Which Came First? A

Write these words in ABC order on the eggs:
egg chicken hen rooster barn shell



Put these words in ABC order on the back of this worksheet:
beak yoke hatch peep chirp embryo

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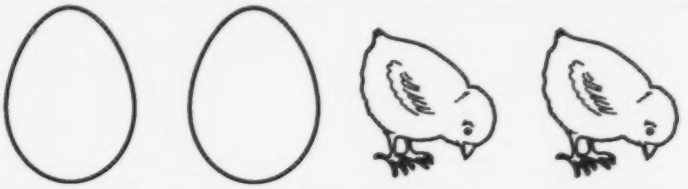
Name _____

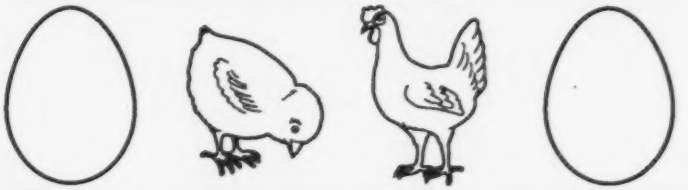
The Chicken or the Egg? B

Complete the patterns. Draw or write on the lines.

_____ _____



_____ _____



_____ _____

_____ _____ _____

hen egg chick

_____ _____ _____

---------- ---------- ----------

_____ _____ _____

peep peep chirp

_____ _____ _____

---------- ---------- ----------

_____ _____ _____

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MIXED-UP MARKERS

LA 13

SUBJECT: Language Arts

GRADE: 2

CONCEPT: I

COMMODITY: Horticulture

LEARNER OUTCOME

Grade Two: V. B. The student will recognize that words represent ideas, experiences, objects, events and actions.

LEARNER OBJECTIVE

The student will unscramble the garden crop terms and write them correctly in the blanks provided.

LESSON

A. Step-by-Step Instructions

1. Bring pictures or actual vegetables to class for students to identify.
2. Lead a discussion, based on the question, *"What is a garden?"* Ask if anyone in the class has raised a garden.
3. Hand out student worksheets. Instruct students to unscramble the mixed-up garden markers so they can identify the crop that will grow in the marked areas.

B. Background

The scrambled words on your worksheet are the names of vegetables commonly grown on family farms in Oklahoma. Watermelon, green beans, tomatoes, squash, corn and pumpkins all grow well in Oklahoma weather.

Many Oklahoma farm families make vegetable gardens for their personal use. Family members can or freeze the fresh produce to use later, during the winter months. Some Oklahoma farmers also grow these crops to sell commercially.

Source: OSU Cooperative Extension Service, Horticulture Dept.

C. Resources

Books

Barden, Helen, *Busy Little Gardener*, Jelly Bean, 1990.
Watts, Barrie, *Potato*, Silver-Burdett, 1987.
Watts, Barrie, *Tomato*, Silver-Burdett, 1987.
Wilkes, Angela, *Growing Things*, Usborne, 1984.

Additional Resources

Children's Gardens: a Field Guide for Teachers, Parents and Volunteers, Common Ground Garden Program, 2615 S. Grand Ave., Ste. 400, Los Angeles, CA 90007 (a gardening manual with activities and projects especially suited for children, $12.50. Make checks payable to LA Harvest.)

Growlab - A Complete Guide to Gardening in the Classroom, National Gardening Association, 180 Flynn Ave., Burlington, VT 05404 (128-page softbound teacher's book, with reproducibles, $14.95, plus $3 shipping).

D. Evaluation

Correct answers for the worksheet are as follows: 1. corn; 2. beans; 3. potatoes; 4. squash; 5. peas; 6. tomatoes.

E. Related Activities

1. Bring samples of the foods featured on the worksheet so students can see and sample them.

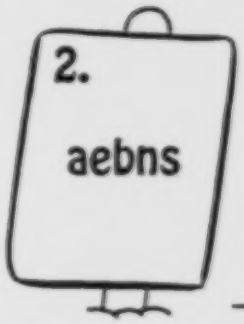
2. Have students plant bean seeds in paper cups. Let them have a race to see who has the tallest bean plant by the end of a week.
3. Have students grow sweet potatoes in tall glasses or jars of water. Place toothpicks in the potatoes so just the tip of the potato is above water. Put it in a sunny place. In about two weeks, sprouts will begin to appear.
4. Grow a sponge garden. Wet a small sponge with tap water. Roll it in grass seed or birdseed. Put the sponge in a saucer of water. Place it in a sunny window. Check the water level in the saucer and refill it if it gets low. In a few days sprouts will appear.
5. Use horticulture books, seed catalogs or encycloedias to locate pictures of the garden plants featured on the student page. Have students draw the plant next to its marker.

Name _____

Mixed-Up Markers

Unscramble the garden markers. Find out what food grows in each row. Write your answer on the dotted line.

_ _ _ _ _



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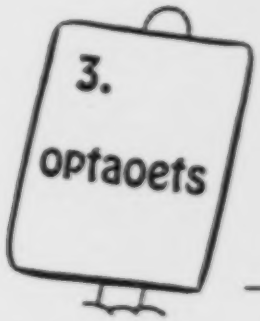

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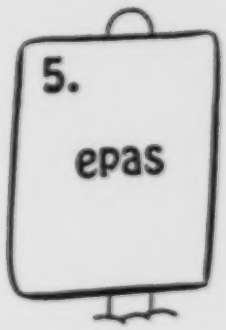

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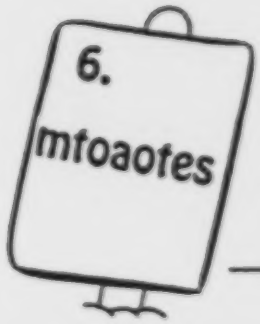

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FROM SEED TO TREE

LA 14

SUBJECT: Language Arts

GRADE: 2

CONCEPT: IV

COMMODITY: Forestry

LEARNER OUTCOME

Grade Two: I. A. The student will learn to listen for and apply information.

LEARNER OBJECTIVE

The student will become familiar with the basic life cycle of an oak tree by use of step by step pictures and sentences.

LESSON

A. Step-by-Step Instructions

1. Bring a supply of acorns to class for students to handle and examine. Summarize and share the background information.
2. Pass out student worksheet A. Discuss the pictures and what they represent. Have students cut out the pictures and place them in the proper order. Then have students write the appropriate numbers in the squares provided. Students may also staple the pictures together to make a book.
3. Read the following dictation sentences and have students write them under the appropriate pictures on worksheet B, C and D. Then have them cut out the pictures and staple them together to make books.

Dictation Sentences:

The acorn is the seed of an oak tree.
A small root grows down into the soil.
A stem and leaves grow above the soil.
A baby tree is called a "seedling."
A hard stem is called "wood."
An oak tree can grow 100 feet tall.

4. Pass out student worksheet E, and have students write a short story about acorns and oaks.

B. Background

Buds are on the trees all winter. When spring comes, tree buds become the leaves on the twigs and branches. Some buds become flowers. Warm sunlight and plenty of water helps the leaves and flowers open.

Flowers make seeds. Seeds drop to the ground. Water can carry the seeds away. Squirrels and other animals may bury the seeds. Wind will blow some seeds, while others will hitch rides by sticking to the fur of animals.

Oak trees grow all over most of the eastern U.S. There are 21 different kinds of oak trees in Oklahoma. The oak can grow well over 100 feet and has stout, wide-spreading limbs. The trunk and branches of the white oak grow much larger than those of the pin oak. The white oak's leaves are rounder and larger than those of the pin oak. Oak trees furnish more timber every year than any other hardwood tree.

All oak trees have acorns. The acorn on the white oak is oblong, and the pin oak's acorn is roundish. Each sits in its own cup. The cups have scales.

An acorn can be carried by water or it may be carried away by a squirrel or pack rat and planted someplace where it will grow. A small root grows from the seed down into the soil. Then the stem and leaves grow above the soil. A baby tree is called a seedling. When the stem gets hard it is called wood.

Source: OSU Cooperative Extension Service, Forestry Dept.

C. Resources

Books

Arvetis, Chris, and Carole Palmer, *Why Do Leaves Change Color?* Rand-McNally, 1986.
Brandt, Keith, *Discovering Trees,* Troll, 1982.
Coats, Laura Jane, *The Almond Orchard,* Macmillan, 1991.
Ehlert, Lois, *Red Leaf, Yellow Leaf,* Harcourt, Brace, Jovanovich, 1991.
Fowler, Allen, *It Could Still Be a Tree,* Children's Press, 1990.

Additional Resources

"How a Tree Grows," New York Ag in the Classroom, Cornell University, 111 Kennedy Hall, Ithaca, NY 14853 (poster, $2.50).

D. Evaluation

Did students place the pictures in the correct order and number them properly? Did students write the sentences under the appropriate pictures.

E. Related Activities

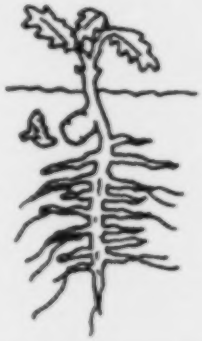
1. Have students collect acorns in the fall and bring them to class. Arrange several different shapes and sizes in a class display. Label the acorns according to where they were found (playground, park, Grandma's house).
2. Float acorns in water. Rotten, hollow acorns will float. Acorns suited for planting will sink because of the food stored inside.
3. Grow a tree. Plant acorns in pots in November or outside in February or March.
4. Make acorn face magnets. Use paint pens to create a face on the actual acorn, leaving the top on for a cap. Glue a magnet strip to the acorn.
5. Use the acorn pattern in the back of the book to make informational booklets about oak trees.

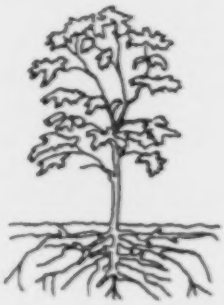
Name _____

From Seed to Tree

A

Cut out these pictures and put them in the correct order. Number them from one to six.





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Name _____

From Seed to Tree B

Write the sentences under the pictures as your teacher reads them to you.

1.

2.

Cut out the pages and glue or staple them together to make a book.

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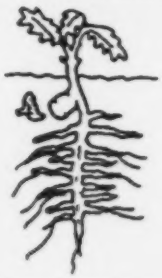
Name _____

From Seed to Tree C

Write the sentences under the pictures as your teacher reads them to you.

3.



4.

Cut out the pages and glue or staple them together to make a book.

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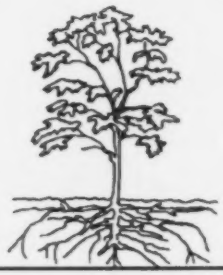
Ag in the Classroom

Name _____

From Seed to Tree D

Write the sentences under the pictures as your teacher reads them to you.

5.



6.

Cut out the pages and glue or staple them together to make a book.

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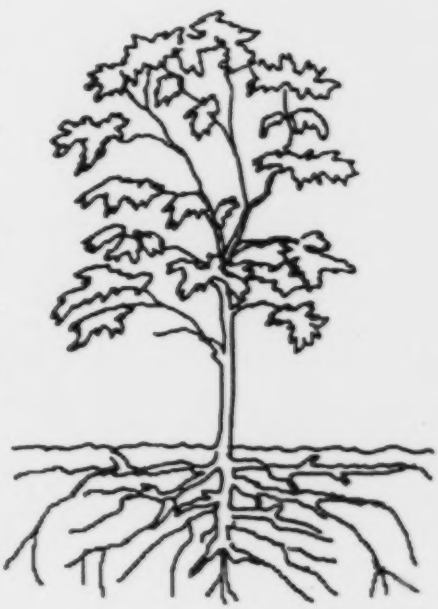
Ag in the Classroom

Name _____

From Seed to Tree

E

Write a story telling how the acorn became a tree.



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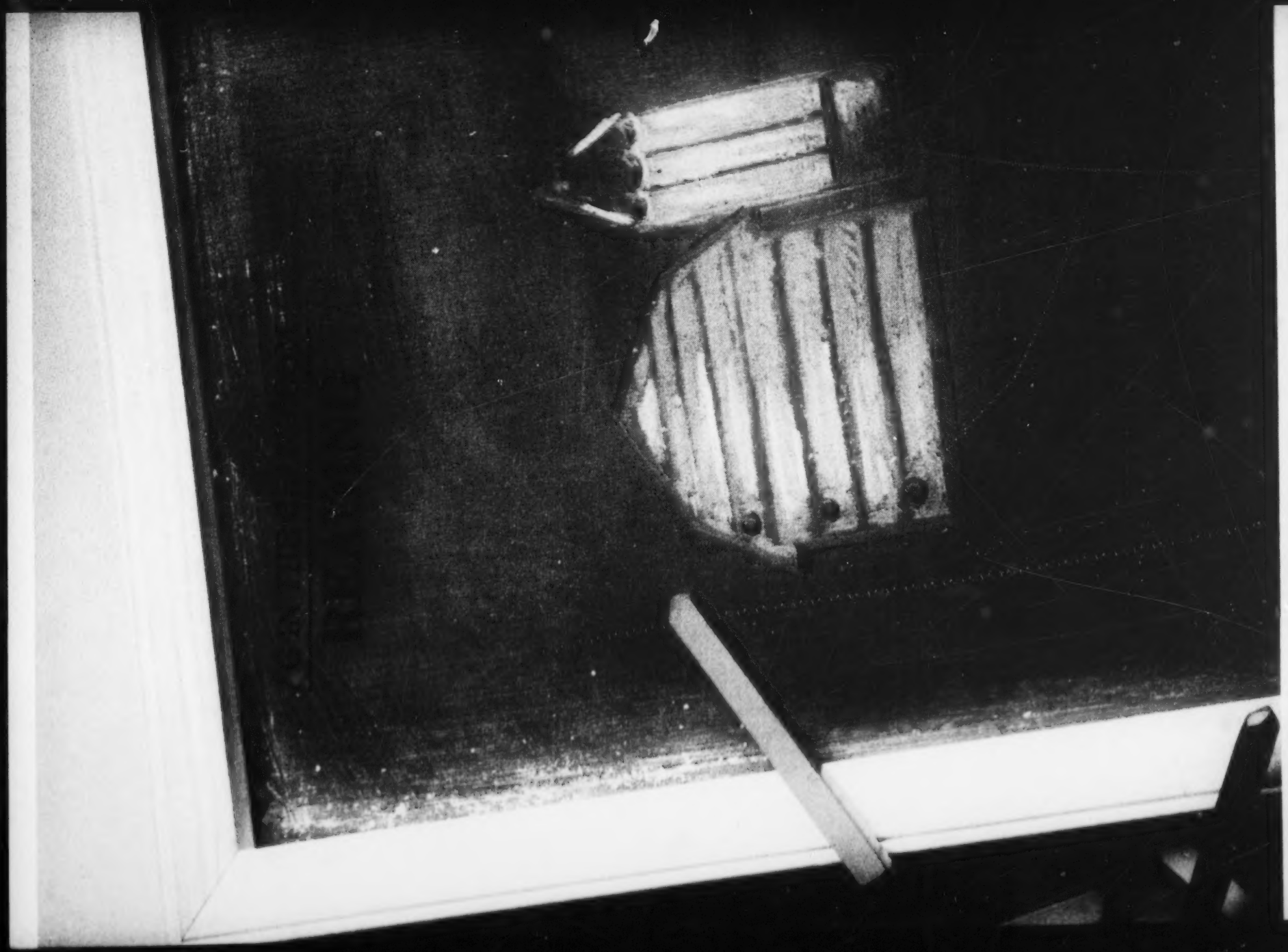


WHAT HAPPENED? R 1

SUBJECT: Reading **GRADES:** K-2

CONCEPT: III **COMMODITY:** Wheat

LEARNER OUTCOME

Grade One: III. E. The student will respond to literature and other print material through discussion, dramatization, art, writing, using inventive spelling, and reading other books.

LEARNER OBJECTIVE

To sharpen the student's listening skills and his/her ability to sequence pictures according to the story line.

LESSON

A. Step-by-Step Instructions

1. Read the story, "The Little Red Hen," to students.
2. Have students number the pictures to correspond with the story they just heard.
3. Share the background information while students color the pictures on the student worksheet.
4. Help students make stick puppets and act out the play.

B. Background

Farmers have lots of different jobs to do. At different times, a farmer may have to be a veterinarian, a machine operator, a mechanic, a salesman, a businessman, a banker, a bookkeeper or a manager. Some farmers do all these jobs by themselves!

What if every farmer had the same problem as the Little Red Hen? Many farmers plant, water and cut their own wheat. But after that they are ready for some help. First the farmer takes his wheat to the mill. There the miller grinds it into flour. Then it is ready for the baker to make it into bread. When everyone helps out, no one is left, like the Little Red Hen, to do the work alone. And we all get to enjoy the finished product.

C. Resources

Books

Galdone, Paul, *The Little Red Hen,* Seabury Press, 1973.
Johnson, Sylvia A, *Wheat,* Lerner, 1990.
Patent, Dorothy Hinshaw, *Wheat, the Golden Harvest,* Dodd, Mead and Co., 1987.
Watts, Franklin, *Wheat,* Children's Press, 1977.

D. Evaluation Methods

The pictures should be numbered as follows: 1. Seeds; 2. Rain; 3. Plants; 4. Flour; and 5. Bread.

E. Related Activities

1. Using the background materials, have students act out the different jobs a farmer has to do.
2. Visit a grain elevator in your area. A county agent or farm family can help with the arrangements.
3. Discuss the concept of cooperation. *How do you feel after you have helped out with a group project?*
4. Discuss what the moral of the story is. Have the class write a moral to fit the story.

THE LITTLE RED HEN

One morning the Little Red Hen was pecking in the barnyard when she came across some grains of wheat. "I think I'll plant these grains and grow some wheat," she said. "Then I can bake some bread!"

So the Little Red Hen gathered up the grains of wheat. "Who will help me plant this wheat?" she asked her friends.

"Not I!" mooed the cow.
"Not I!" grunted the pig.
"Not I!" bleated the lamb.
So the Little Red Hen planted the grains of wheat *all by herself.*

With the help of the sun and rain, the wheat grew and grew until it was tall and golden.
"Who will help me cut the wheat?" asked the Little Red Hen.
"Not I!" mooed the cow.
"Not I!" grunted the pig.
"Not I!" bleated the lamb.
So the Little Red Hen cut the wheat *all by herself.*

"Who will help me take the wheat to the mill so the miller can grind it into flour?" asked the Little Red Hen.
"Not I!" mooed the cow.
"Not I!" grunted the pig.
"Not I!" bleated the lamb.
So the Little Red Hen carried the wheat to the mill *all by herself.*

When the Little Red Hen returned from the mill with the sack of flour, she asked, "Who will help me bake some bread?"
"Not I!" mooed the cow.
"Not I!" grunted the pig.
"Not I!" bleated the lamb.
So the Little Red Hen kneaded the flour into dough *all by herself.*

Before long she had baked a warm and tasty loaf of bread. "Now who will help me eat the bread?" called the Little Red Hen.
"I will!" mooed the cow.
"I will!" grunted the pig.
"I will!" bleated the lamb.
"Oh, no, you won't," said the Little Red Hen. "I planted the wheat. I cut the wheat. I took it to the mill to be ground into flour. And I baked this bread without any help from the three of you!"

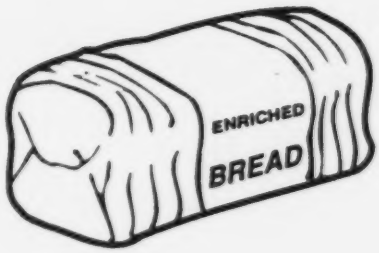
Then the Little Red Hen took a bit of fresh butter, sat down under a shady tree, and ate the loaf of bread . . . ***all by herself!***

Name _____

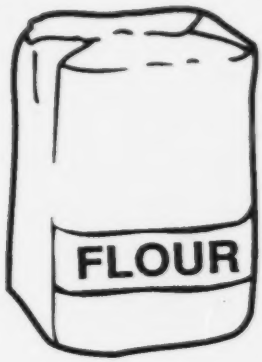
What Happened?

Number the pictures in the same order as in the story. Color the pictures

_____seeds

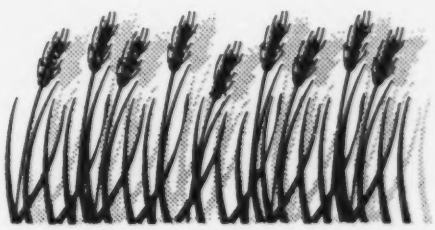


_____bread



_____flour

_____rain



_____plant

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Name _____

What Happened?

THE LITTLE RED HEN

(Characters: Farmer; Little Red Hen; Cow; Pig; Lamb)

Act One

Farmer: *It is early spring. The animals are in the barnyard, talking among themselves. In the corner of the barnyard, Little Red Hen discovers some golden grains of wheat.*

Little Red Hen: *My, my. Look what I have found. Barnyard friends, who will help me plant these wheat seeds?*

Cow: *Not I. I am too busy.*

Pig: *Not I. I have to hurry off.*

Lamb: *Not I. I have just too many things to do.*

Little Red Hen: *Then I will do it by myself.*

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Act Two

Farmer: *It is fall now. The seeds have grown into wheat. The wheat is ripe and golden.*

Little Red Hen: *Barnyard friends, the wheat is ready to cut. Who will help me cut the wheat?*

Cow: *Not I. I need a nap.*

Pig: *Not I. I am lying in the mud.*

Lamb: *Not I. I am going for a run in the meadow.*

Little Red Hen: *Then I will do it myself.*

Act Three

Farmer: *The wheat kernels are ready to go to the mill to be ground into flour.*

Little Red Hen: *Who will help me take the grain to the mill?*

Cow: *Not I. I am eating some grass.*

Pig: *Not I. I am too tired.*

Lamb: *Not I. I am playing with my friends.*

Little Red Hen: *Then I will do it myself.*

Act Four

Farmer: *LIttle Red Hen comes back to the farm with the flour. She quickly begins to make some bread. The smell of fresh bread fills the barnyard. All the animals gather around the LIttle Red Hen.*

Little Red Hen: *How good my bread smells. Who will help me eat the fresh bread?*

Cow: *I will! It smells great!*

Pig: *I will! I am always hungry.*

Lamb: *I will! What a great snack!*

Little Red Hen: *Oh, no! You cannot help me eat this bread. I had to plant the wheat and take it to the mill. Then I made the bread all by myself. I did all of the work. Now I will eat the bread . . ALL BY MYSELF!*

Farmer: *And she did.*

Name _____

What Happened?

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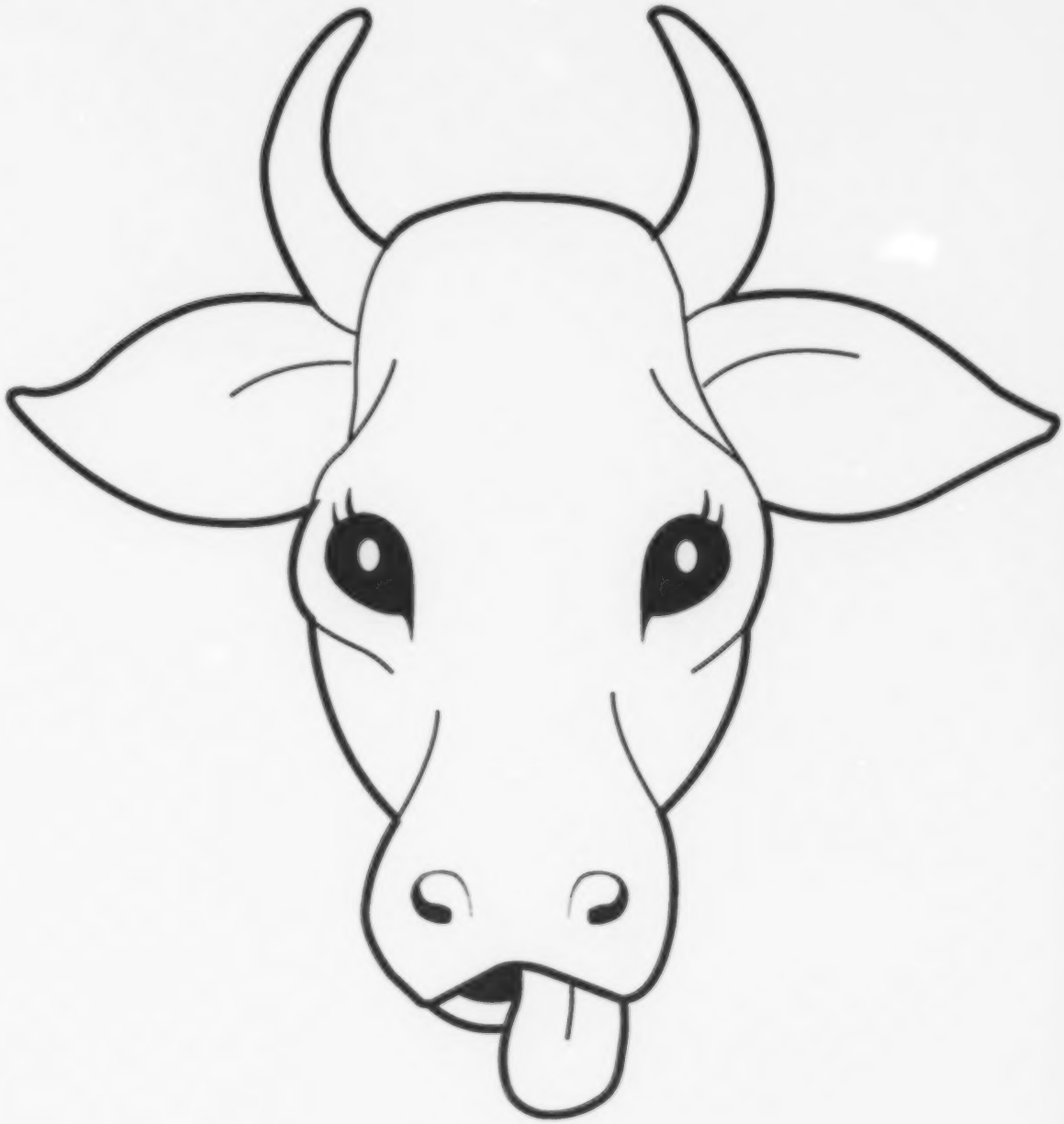
Name _____

What Happened?



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What Happened?

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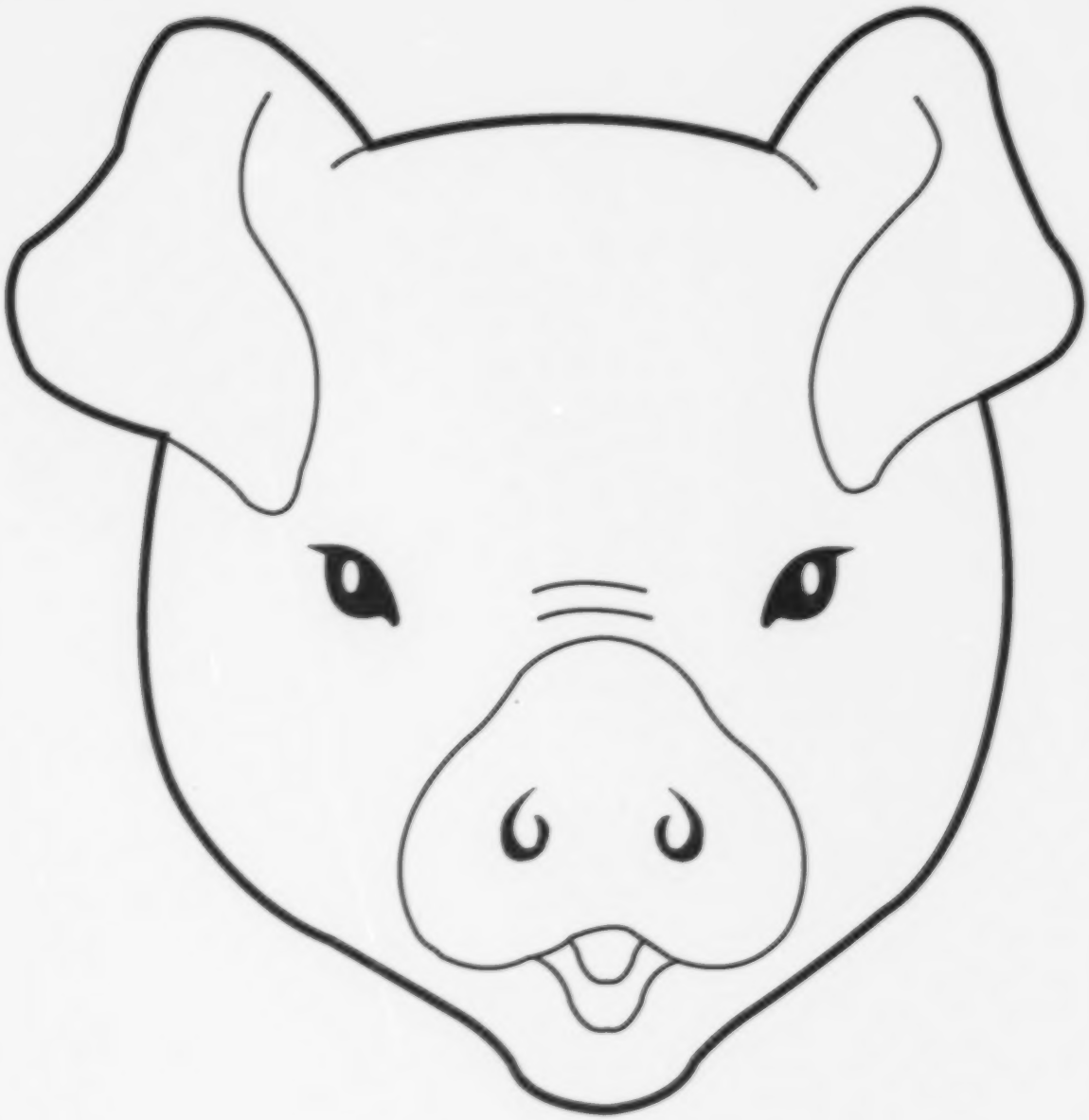
What Happened?



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Name _____

What Happened?

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MEET GRADY THE COW

R 2

SUBJECT: Reading

GRADES: K-1

CONCEPT: III

COMMODITY: Beef

LEARNER OUTCOME

Grade One. III. B. The student will demonstrate awareness of characters, setting, and plots through retelling stories.

LEARNER OBJECTIVE

To listen to and interpret the story of Grady the Cow.

LESSON

A. Step-by-Step Instructions

1. Read the story of Grady the Cow as a group.
2. Discuss where Grady lived. Describe a silo and barn.
3. Give the students some reference to the size of the silo opening and the cow. Draw a 17.5- by 25.5-inch rectangle on the board, or cut it out of construction paper. This is the size of the silo opening. To show students the approximate width of the 3-foot wide cow, line up two or three students, shoulder to shoulder. To show the approximate 7- to 8-foot length of the cow, line up six or seven students, shoulder to shoulder.
4. Using the worksheet, cut out Grady, the silo, and the barn. Glue the figures on a sheet of construction paper, to create a farm scene.
5. Allow time for the students to share their art and to retell their version of the story of Grady the Cow.

B. Background

The story of Grady the Cow is a true story that happened in Yukon, OK, in 1949.

C. Resources

Books

Adams, Pam (illus.), *Old MacDonald Had a Farm,* Child's Play Ltd. 1975
Kaizuki, Kiyonori, *A Calf is Born,* Orchard, 1990.
Kindersley, Dorling, *Farm Animals,* Aladdin, 1991.
McFarland, Cynthia, *Cows In The Parlor,* Atheneum, 1990.
Salmon, Michael, *Who's Behind the Barn Door? At the Farm,* Steck-Vaughn, 1990.

Additional Resources

Mabel C. Fry Library, 500 W. Main, Yukon, OK 73099 (Sue Kilmer, librarian).

D. Evaluation

Were the children able to cut and glue the barn, silo and Grady?

E. Related Activities

Color each figure. Act out the story in a skit.

Ernest Berousek
Sue Kilmer

Yukon Becomes Famous with Grady, the Cow

Yukon was a little town in 1949. Probably very few people knew about it outside of Canadian County and Oklahoma. But in February of that year, the town of Yukon made headlines across the United States, because it was the home town of a cow with an interesting problem.

Grady, a Hereford cow weighing 1,400 solid pounds, had just given birth to a dead calf. In her confusion she became so startled that she leapt through a small opening in a nearby silo. The hole that Grady went through so suddenly and successfully measured only 17.5 inches by 25.5 inches. If Grady's owner, Bill Mach, hadn't been there, he would never have believed the cow could have managed the act.

Now Farmer Bill really had a problem--how to get Grady out of the silo. Both the cow and the silo were too valuable to lose. The structure of the silo, with the opening encased in steel, did not allow for any widening of the hole. Nor could Grady be made any narrower. What to do? Bill Mach requested help, and local and distant newspapers picked up the S.O.S.

Even more amazing than the fact that Grady had gotten into the silo was the response Bill received from people with ideas to help free the cow from the silo, which had become a 16-foot cell. Calls and telegrams poured in from St. Louis, Denver, Chicago, San Antonio, Des Moines, and even Canada. Some of the suggestions were: use a helicopter to lift Grady out; bring an attractive bull near to lure Grady out; fill in the silo with water and float the cow to the top.

Help is on the way!

The winning suggestion came from Ralph Partridge, farm editor of the *Denver Post,* who not only made the suggestion but flew to Yukon to carry out his idea of greasing Grady's body, sedating her, and then pulling and pushing her through the opening. It worked! After a five-day stay in the silo, Grady was free.

The fame of Grady, the cow, continued. *Yukon Sun* editor, Bob Park, renamed his editorial column "Down by the Silo" in her honor. A local merchant used the Grady incident as an advertising notion, claiming "Don't let your cow jump into your silo. But, in case she does, remember this is the place to get your grease!"

Grady also attended the Oklahoma State Fair and was quite a drawing card for the fair and for the town of Yukon. People would go to the fair to see Grady and take her picture. Then they would travel to Yukon to photograph the silo in which she was trapped.

In addition, a children's book called *The Cow in the Silo* was published. The book was based on Grady's story and became very popular.

Grady took her nation-wide publicity and sudden fame very calmly. She lived until she was 18 years old. When she died, in 1961, her story once again made front-page coverage in the newspapers.

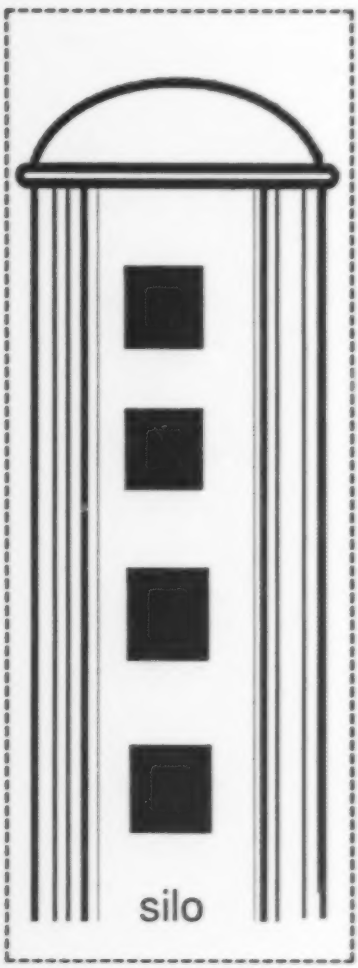
As for the well-known silo, it still stands as a remembrance of the event. It is located on the west side of Highway 92 and can be easily seen south of the I-40 overpass. The farmstead has been removed, and the silo stands alone. Grady's owners, the Bill Mach family, now live some distance from the silo.

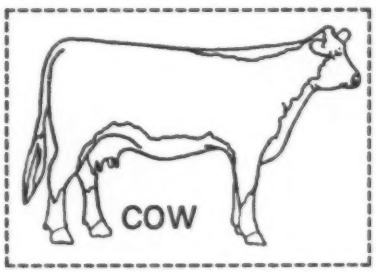
Clarence Wright, the current owner of the property, intends to leave the silo as it is. Since the silo is now located in a choice commercial area, maybe someday a restaurant or other public structure will be built at the silo site, and people will look out the window and wonder, "How did Grady, the cow, ever go through that small opening?"

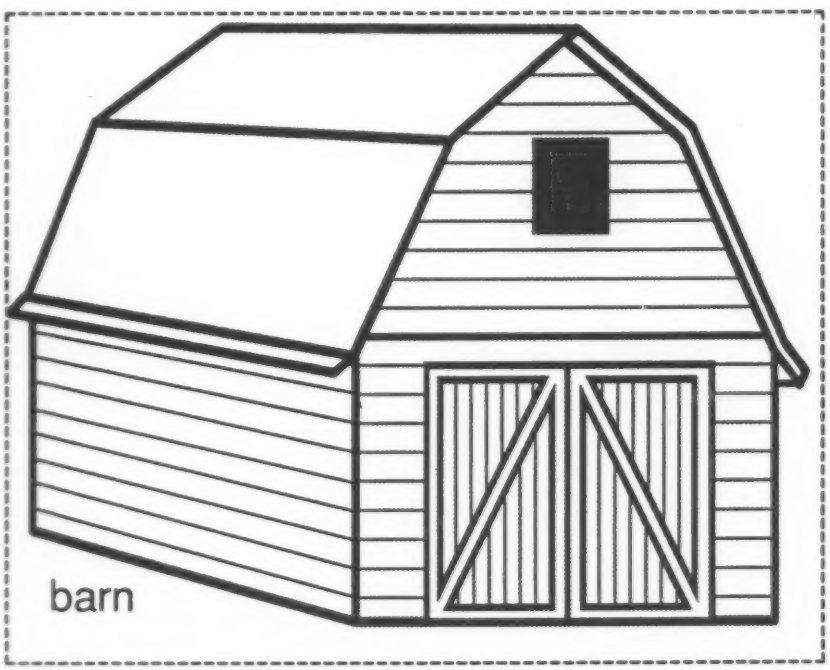
Name _____

Meet Grady the Cow

Cut out the pictures. Glue the pictures to a sheet of construction paper to create a farm scene. Color the pictures.







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Ag in the Classroom

BEEF - FROM FARM TO TABLE R 3

SUBJECT: Reading **GRADE:** 2

CONCEPT: V **COMMODITY:** Beef

LEARNER OUTCOME

Grade Two: III. The student will use vocabulary words from the story in discussions and other response activities.

LEARNER OBJECTIVE

The student will learn that the beef we eat comes from beef animals.

LESSON

A. Step-by-Step Instructions

1. Read the story, "The Field Trip"
2. Have students underline key vocabulary words in their copies of the story.
3. Discuss the steps beef takes from calf to table and talk about the different beef cuts - hamburger, beef jerky, roast beef, all-beef hot dogs, steak.
4. Have members of the class repeat the story in their own words, using as many of the vocabulary words as possible.

B. Background

Vocabulary

beef cattle *- type of cattle raised mainly for their meat.*
grazing *- when cattle eat grass in the field.*
grass *- a kind of plant which cattle can eat with narrow leaves, hollow stems and spikes of flowers which cattle can eat.*
pasture *- a field of grass where cattle live and eat.*
hay *- grass or other plants cut and dried for cattle to eat.*
grain *- the seeds of cereal grasses (wheat, oats, barley, etc.) which cattle eat after they have been harvested.*
water *- a clear liquid all plants and animals need to live.*
feedlot *- a place where cattle are kept in a small place and fed special food so they will grow larger.*
meat *- the flesh of the beef cow that can be eaten.*
packing plant *- place where beef cattle are killed and made ready for the supermarket.*
carcass *- animal after the hide, head, hooves and internal organs are removed to make it ready for the supermarket.*
butcher *- person at the supermarket who cuts meat into pieces for selling.*
hamburger *- ground beef.*

Source: OSU Division of Agricultural Sciences and Natural Resources

C. Resources

Books

Bond, Shirley, and Janet Cook, *Where Food Comes From,* EDC, 1989.
Brown, Craig, *My Barn,* Greenwillow, 1991.
Cousins, Lucy, *Farm Animals,* Tambourine, 1991.
Graff, Nancy Price, *The Strength of the Hills: A Portrait of a Family Farm,* Little, Brown, 1989.
Pryor, Bonnie, *Greenbrook Farm,* Simon & Schuster Books for Young Readers, 1991.
Showers, Paul, *What Happens to a Hamburger?* Harper Trophy, 1985.

Additional Resources

"Beef from the Farm to You," Oklahoma Beef Industry Council, 5101 N. Clssen, Ste. 210, Oklahoma City, OK 73105, (405)840-3777 (coloring book.)

"Happiness is a Beef Cow," Shirley Domeier, Rt. 2, Box 77, New Ulm, MN 56073 (24-page coloring book, 50 cents each, with a minimum order of 20).

D. Evaluation

Were the students able to identify and underline the beef-related vocabulary words in the reading?

E. Related Activities

1. Have students write a group story explaining how beef gets from the farm to the table.
2. Have students place vocabulary words in alphabetical order or look them up in a dictionary and write down the definitions.
3. Make beef jerky, or have your class make beef jerky, using one of the following methods.

Beef Jerky

Use very lean flank steak that is partially frozen so it will be easier to cut. Cut the meat into thin strips, 1 1/2 to 2 inches wide. Dip the strips in teriyaki sauce.

Sun Dried - Tie small packages of the strips of meat in cheese cloth and hang them in a sunny window. Keep the packages loose enough so air can circulate around the strips. Shake the packages gently every day or two to make sure the strips are getting plenty of air. In about a week, the meat should be shriveled and black and brittle.

Oven Dried - Arrange the seasoned strips of meat in a single layer on wire racks. Place a piece of aluminum foil on the bottom of the oven to catch drippings. Preheat the oven to 150 degrees and then turn the heat back to 120 degrees. Place the meat in the oven, leaving the oven door open at the first stop. After five or six hours turn the strips over. Continue drying at the same temperature for four hours more. When dry enough, jerky is shriveled and black. When cooled, the jerky should be brittle.

Microwave Dried - Arrange the seasoned strips of meat flat and close together on a microwave-safe bacon rack. Cover with waxed paper and microwave at *medium low.* Turn the strips over, placing the drier strips in the center of the rack. Rotate the rack one-half turn and continue microwaving at *medium low* for 21 minutes until the strips are dry but slightly pliable. Remove to the paper towels. Repeat with remaining strips. Cover the strips with paper towels and let them stand for 24 hours.

Storage - Wrap the sticks of jerky in plastic wrap and put them in a container with a tight-fitting lid. Store in the refrigerator or freezer. Eat the jerky dry or reconstitute it by simmering it in water.

Name _____

Beef - From Farm to Table

Read this story, and underline the 14 vocabulary words.

Vocabulary Words				
ranch	beef cattle	grazing	hay	water
grass	hamburgers	pasture	grain	carcass
meat	feedlot	packing plant		butcher

THE FIELD TRIP

The day for the field trip had finally come. Today the class was going to follow the many steps beef cattle takes before it becomes the meat we eat at meal times. By the end of the day, the students would understand how beef gets from the farm to the table.

Their first stop was a local ranch. A herd of beef cattle was grazing on tall pasture grass. In the barnyard the students watched cattle eating hay from big, round bales. Some were eating grain. Others were drinking water from a tank.

From there the bus took the students to a feedlot. At the feedlot cattle stay in pens. They eat a lot of food there, so they will get big enough to sell at a good price.

The next stop was a packing plant. Workers at the packing plant slaughter the live cattle to make the meat we eat. The "carcass" will hang in a giant cooler, like a refrigerator. It will be cut into slabs. Then it will be shipped to the local grocery store.

When the large pieces of meat arrive at the grocery store they are delivered to the meat counter where the butcher works. The butcher takes the meat and cuts it into small pieces. Then he puts the meat in packages.

After the tour the students went to a restaurant for lunch. They found items on the menu that were made from beef. Most of the students ordered hamburgers made from ground beef. When the students returned to school, they worked on a group story explaining how beef gets from the farm to the table.

Color your favorite cut of beef.

steak

roast

hamburger

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MY FARM FRIEND

R 4

SUBJECT: Reading

GRADE: 2

CONCEPT: III

COMMODITY: Miscellaneous

LEARNER OUTCOME

Grade Two: I. K. The student will read for social interaction.

LEARNER OBJECTIVE

The student will write letters to area farmers and/or ranchers to learn about their work.

LESSON (No student worksheet is needed for this lesson.)

A. Step-by-Step Instructions

1. Get a list of area farmers from your county Extension office, FFA advisor, Young Farmer's group, farmer service agency or other resource.
2. Have students write letters to farm pen pals sharing what they have learned from their Ag in the Classroom lessons. Students should also ask farmers questions about their work.
3. Have students share responses with their classmates.

B. Background

Farmers are an important part of our community. Without farmers we would have no food to eat. Many of the fabrics used to make the clothes we wear would not be available. Blue jeans are made from cotton that farmers grow.

There are many different kinds of farmers. Some farmers work at other jobs and only grow a few crops or animals to sell. Other farmers work long hours caring for acres of crops or large herds of animals. Some farmers raise unusual crops like catfish.

Farmers lead very active and interesting lives. They must do many different jobs to keep their farms and ranches running smoothly. On one day a sick animal might need doctoring. On another day the farmer may have to figure out when is the right time to sell his wheat so he or she can get the best price. Farmers have to juggle all these jobs to make sure everything is running smoothly.

Farming holds an important place in the history of our country and our state. The United States started as a nation of farmers. The first European settlers in Oklahoma came here because they were promised free farm land. Farming is still Oklahoma's leading industry.

Source: OSU Division of Agricultural Sciences and Natural Resources

C. Resources

Books

Civardi, Anne, *The Farmer*, EDC, 1986.

Collins, David R., *Pioneer Plowmaker, A Story About John Deere*, Carolrhoda, 1990.

Easton, Patricia, *Stable Girl: Working for the Family*, Harcourt, Brace, Jovanovich, 1991.

Gibbons, Gail, *Farming*, Holiday House, 1988.

Hall, Donald, *The Ox Cart Man*, Viking, 1979.

D. Evaluation
Were students able to organize their ideas for the letters?

E. Related Activities
If "pen pal" relationships develop invite the farmer or farmers to visit the classroom or ask if the class can visit the farm.

SEEDS WE EAT

R 5

SUBJECT: Reading

GRADE: 2

CONCEPT: I

COMMODITY: Horticulture

SUGGESTED LEARNER OUTCOME

Grades Two: III. Students will use prior knowledge to interact actively with reading materials and extend, elaborate, and critically judge the meaning of what is read.

LEARNER OBJECTIVE

Students will be able to answer simple questions after reading a passage dealing with seeds. Students will also be able to identify seeds humans eat and seeds that humans do not eat.

LESSON

A. Step-by-Step Instructions

1. Read the informational paragraphs at the tops of worksheets A and B with your students.
2. Have students complete the work by following the written directions on each worksheet.
3. Have students make seed collections, using common kitchen foods (see worksheet B).

B. Background

All the seeds featured on the student worksheets are from plants that can be found growing somewhere in Oklahoma. Some, like cucumber vines or apple trees, may grow in family gardens. Others, like wheat and oat plants, are most often found growing on large farms covering hundred of acres.

The one seed not grown in Oklahoma is from a grapefruit. Grapefruit is a citrus fruit and will grow only in hot climates. Most of the grapefruit your parents buy in the store grew in California, Florida, or southern Texas.

Source: OSU Cooperative Extension Service, Horticulture Department

C. Resources

Books

Barden, Helen, *Busy Little Gardener*, Jelly Bean, 1990.
Bourgoing, Pascale, *Fruit*, First Discovery Book, Scholastic, 1989.
Brown, Elizabeth B., *Vegetables*, Prentice Hall, 1981.
Coats, Laura Jane, *The Almond Orchard*, Macmillan, 1991.
Day, Jenifer W., *What is a Fruit?* Golden/Western, 1976.

Additional Resources

"Color It Corn," Nebraska Corn Board, 301 Centennial Mall South, P. O. Box 95107, Lincoln, NE 68509 (23-page coloring book for grades 1-4, free).
National Peanut Council, 101 S. Peyton St., Suite 301, Alexandria, VA 22314.

D. Evaluation

Worksheet A - Sentences 1, 3 and 4 are true; The "main idea" is in sentence 2; and the correct answers for "Word Fun" are 1. corn, 2. wheat, 3. acorn, and 4. peanuts.

Worksheet B - The seeds that people eat are corn, bean, oats, cucumber, sunflower, peanut and wheat.

E. Related Activities

1. Hold a tasting party for another class. Have students display seeds from the foods they serve and discuss them with their guests.
2. Display seed collections for other students.

Name _____

Seeds We Eat A

bean peanut maple acorn oat corn wheat elm squash

Many plants produce seeds in the fall. Plants with flowers have seeds. Seeds grow in vegetables and fruits. One plant may have many seeds.

Seeds come in many different shapes and sizes. Some are large, like avocado seeds. Some, like tomatoes, are small.

Birds, animals and people eat many of the fruits and vegetables that hold seeds. Sometimes we eat the seeds, too.

Find the facts.

Read these sentences. Draw lines around the sentences that are true.

1. Many plants produce seeds in the fall.
2. Some seeds grow in rocks.
3. Birds eat some seeds.
4. Seeds grow in fruit, vegetables and some flowers.
5. All seeds are brown.

Find the main idea.

Draw a line around the sentence that tells the main idea.

1. Fall is one time to find seeds.
2. Many different kinds of plants have seeds.
3. People eat some seeds.

Word Fun

1. ☐☐☐☐ Seeds on a cob.
2. ☐☐☐☐☐ Seeds used in bread.
3. ☐☐☐☐☐ Seed of an oak tree.
4. ☐☐☐☐☐☐☐ Elephants eat these.

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Name _____

Seeds We Eat B

bean peanut maple acorn oat corn wheat elm squash

Seeds usually grow as part of a flower or inside a protective shell.

Birds and small animals eat many kinds of seed. People eat sunflower seeds and sesame seeds. You have probably eaten seeds in vegetables, like green beans, or in fruits, like bananas. Pecans and other nuts are seeds, too.

Write the names of these seeds in the right list.

corn	watermelon	peanut
bean	cucumber	apple
oats	grapefruit	peach
elm	sunflower	wheat

Seeds People Eat	Seeds People Do Not Eat

Keep a seed collection in an egg carton. Write the names of the seeds on the lid.

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TREE PARTS

R 6

SUBJECTS: Reading

GRADE: 2

CONCEPT: V

COMMODITY: Forestry

LEARNER OUTCOME

Grade Two: III. B. Students will use vocabulary words from the story in discussions and other response activities.

LEARNER OBJECTIVE

The student will identify main and secondary parts of a tree.

LESSON

A. Step-by-Step Instructions

1. Help students brainstorm and list the many ways we use trees every day (most paper goods, firewood, building materials, etc.)
2. Summarize and share background information.
3. Read together the informational paragraphs at the top of the student worksheet. Have students fill in the blanks, using the underlined vocabulary words.

B. Background

Every year the average American uses one tree that is 100 feet tall and 18 inches across. That's what it takes to make all the books, newspapers and magazines you read and all the toilet paper, writing paper, tissue and paper plates you use during the year. It will take that tree between 25 and 40 years to grow big enough so it can be cut down to make those things. As long as a tree lives, it never stops growing.

The top of the tree is called the crown. The crown is made up of branches, twigs and leaves.

The roots are the most important part of the tree. They are at the bottom of the tree, under the ground. They hold the tree in place in the soil and soak up the food the tree needs to live.

The trunk is between the crown and the roots. It is covered with a protective skin called the bark. Bark comes in many colors, textures and thicknesses.

Source: OSU Cooperative Extension Service, Forestry Dept.

C. Resources

Books

Fowler, Allen, *It Could Still Be a Tree*, Children's Press, 1990.

Gibbons, Gail, *Seasons of Arnold's Apple Tree*, Harcourt, Broce Jovanovich, 1988.

Hiscock, Bruce, *Big Tree*, Macmillan, 1991.

Mabey, Richard, *Oak and Company*, Greenwillow, 1983.

Ryder, Joanne, *Hello Tree*, Lodestar Books, 1991.

Additional Resources

"Animal Inn," Bureau of Land Management, Forest Service, P.O. Box 7469, Bend, OR 97708-7469 (information on the uses for dead trees).

"Hunting for Big Trees," National Register of Big Trees, American Forestry Association, P.O. Box 2000, Washington, DC 20013 (information on the "Big Tree Program").

D. Evaluation

Did the students enjoy the lesson? Were the forestry words written in the correct blanks?

E. Related Activities

1. Make ***bark and leaf rubbings*** - Have students collect bark and leaves from several different kinds of trees and bring them to class. Pass out white typing paper and have students place their specimens underneath. Tear the wrappers off some crayons and show students how to rub the crayons over the white paper to pick up the patterns on the bark and leaves. Have students compare rubbings from different kinds of trees and list properties, then group and classify the collected data.
2. Have students draw four different versions of the same tree, showing how it changes from season to season.
3. Set up a simple bar graph for students to take home and graph the estimated heights of trees in their own yards.

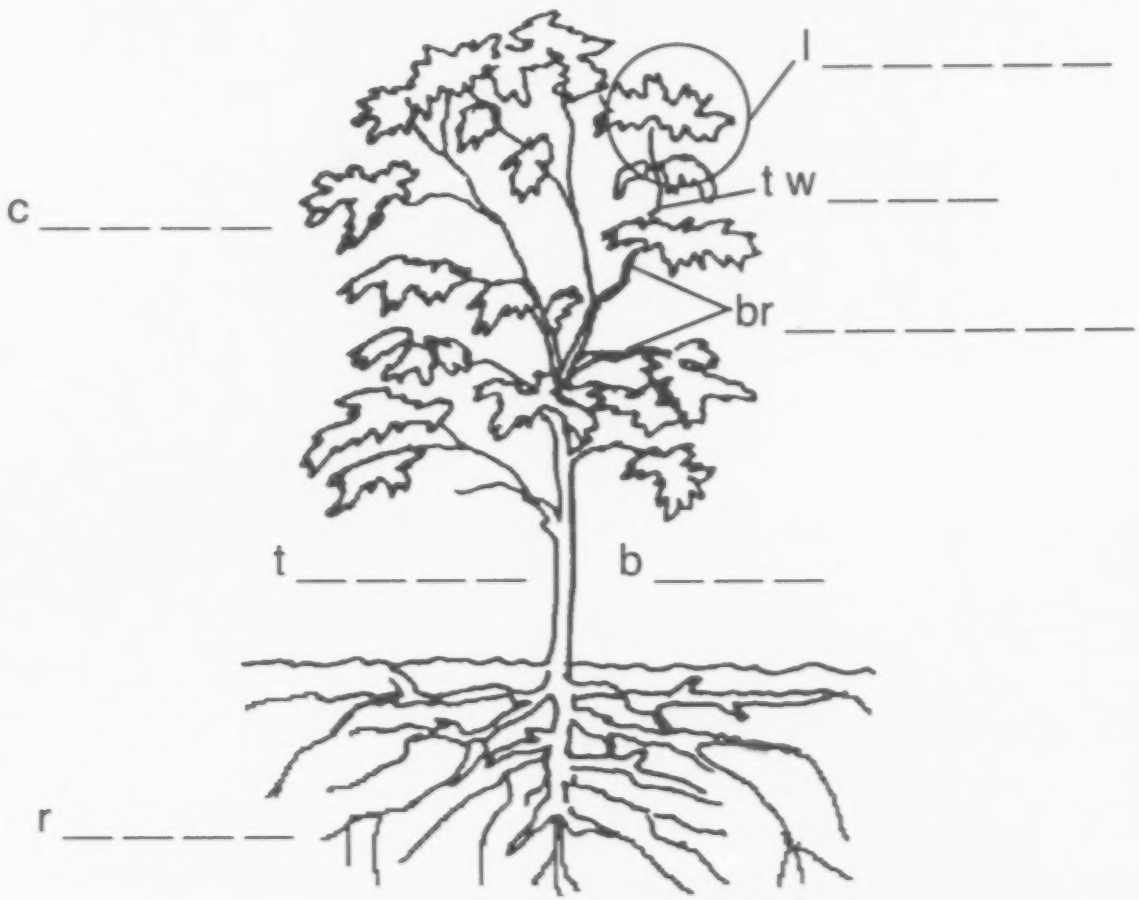
Name _____

Tree Parts

A tree is a plant. It is the largest and oldest kind of plant. A tree keeps growing as long as it lives.

*A tree has three parts—the **crown,** the **trunk** and the **roots.** The **branches, twigs** and **leaves** are in the crown. The trunk and branches of a tree are covered with a "skin" of bark. The **roots** are underground, at the bottom of the tree.*

Write the correct words on the lines to name the parts of the tree.



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WATER - WHAT'S ITS MATTER? R 7

SUBJECT: Reading **GRADE:** 2

CONCEPT: IV **COMMODITY:** Water

LEARNER OUTCOME

Grade Two: II. G. The student will make verify and/or revise predictions while reading.

LEARNER OBJECTIVE

The student will define the three states of matter--solid, liquid and gas.

LESSON

A. Step-by-Step Instructions

1. Bring a clear jar or beaker, water and ice cubes to class.
2. Summarize the background information.
3. Ask students which state of matter takes up the most space--solid or liquid.
4. Fill the jar or beaker with ice cubes. Then fill the jar or beaker to the top with water. Ask students to predict what will happen. *Will the beaker overflow when the ice melts?*

B. Background

Water is a very important substance in our lives. Without water we could not survive. Next to air, water is the most abundant substance on the planet Earth.

Water can be solid, liquid or gas. Ice, snow and hail is water in its ***solid state****. Most of the Earth's frozen water is at the North and South Poles.*

A very small amount of the Earth's water is in the atmosphere, as clouds or fog or steam. This is water in its ***gaseous state****. Water doesn't stay in the atmosphere very long. It falls back to the Earth as rain or snow.*

Rain is water in its ***liquid state****. Most of the liquid water on the Earth is salt water that we cannot drink. Salt water is found in oceans and seas. The water we drink is fresh groundwater, which comes from lakes and streams. Since we only have a small amount of fresh groundwater on the Earth, it is very important that we learn to use it wisely.*

Source: OSU Cooperative Extension Service, Water Quality Task Force

C. Resources

Books

Bloome, Enid, *Water We Drink!* Doubleday, 1971.
Bourgoing, Pascale, *Weather,* First Discovery Book, Scholastic, 1989.
Brooks, F., *Protecting our Rivers and Seas,* EDC, 1991.
Chester, Michael, *Let's Go To Stop Water Pollution,* Putnam, 1969.
Kun Ka, Alice K., *Moth and Frog Race,* Phonics Readers, Steck-Vaughn, 1991.
Santrey, Laurence, *Lakes and Ponds,* Troll Associates, 1985.

Additional Resources

"Water is Our Best Friend," Dennis Nelson, WET Program Coordinator, North Dakota State Water Commission, 900 E. Blvd., Bismarck, ND 58505 (hands-on activity guide introducing water to children).

D. Evaluation

How did student predictions compare with what they observed in the actual experiment? Did they understand what they observed? Is the student able to repeat or recall the three forms of water--solid (ice, snow, hail), liquid

(water, rain) and gas (clouds, steam, fog)?

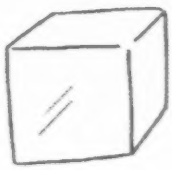
E. Related Activities

1. Give each student a paper drinking cup and seal-locking bag. Instruct students to hold the bag by one corner so it is in a diamond shape. Tape the cup inside the bag to avoid slippage. Next, put two ounces of water in the cup. Seal the bag, and tape it to a sunny window. Have students record what they observe after 10 minutes, 30 minutes, two days and four days. (The water should evaporate from the cup, condense on the sides of the bag and collect in the bottom of the bag.)
2. Make a ***water xylophone.*** Tune eight identical one quart jars with a piano or pitch pipe. Each jar should have a different amount of water in it. Label the jars one through eight to indicate the eight different pitches. Then listen to your students make beautiful music.

Name _____

Water—What's Its Matter?

The water is in what form—solid, liquid or gas?



_____ _____ _____

Experiment:

Ice is the solid form of water. It floats in the water. What will happen when the ice melts? Will the melted ice take take up more room in the glass?

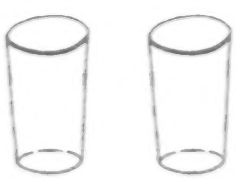
Mark the water level on the glass in the middle to show your prediction. Then mark the water level on the glass on the right to show what you observe after the ice melts.

Fill the glass with ice, then water.

Prediction (before ice melts)

Observation (after ice melts)

What will happen if we leave the glass on a shelf for two weeks?

prediction  observation

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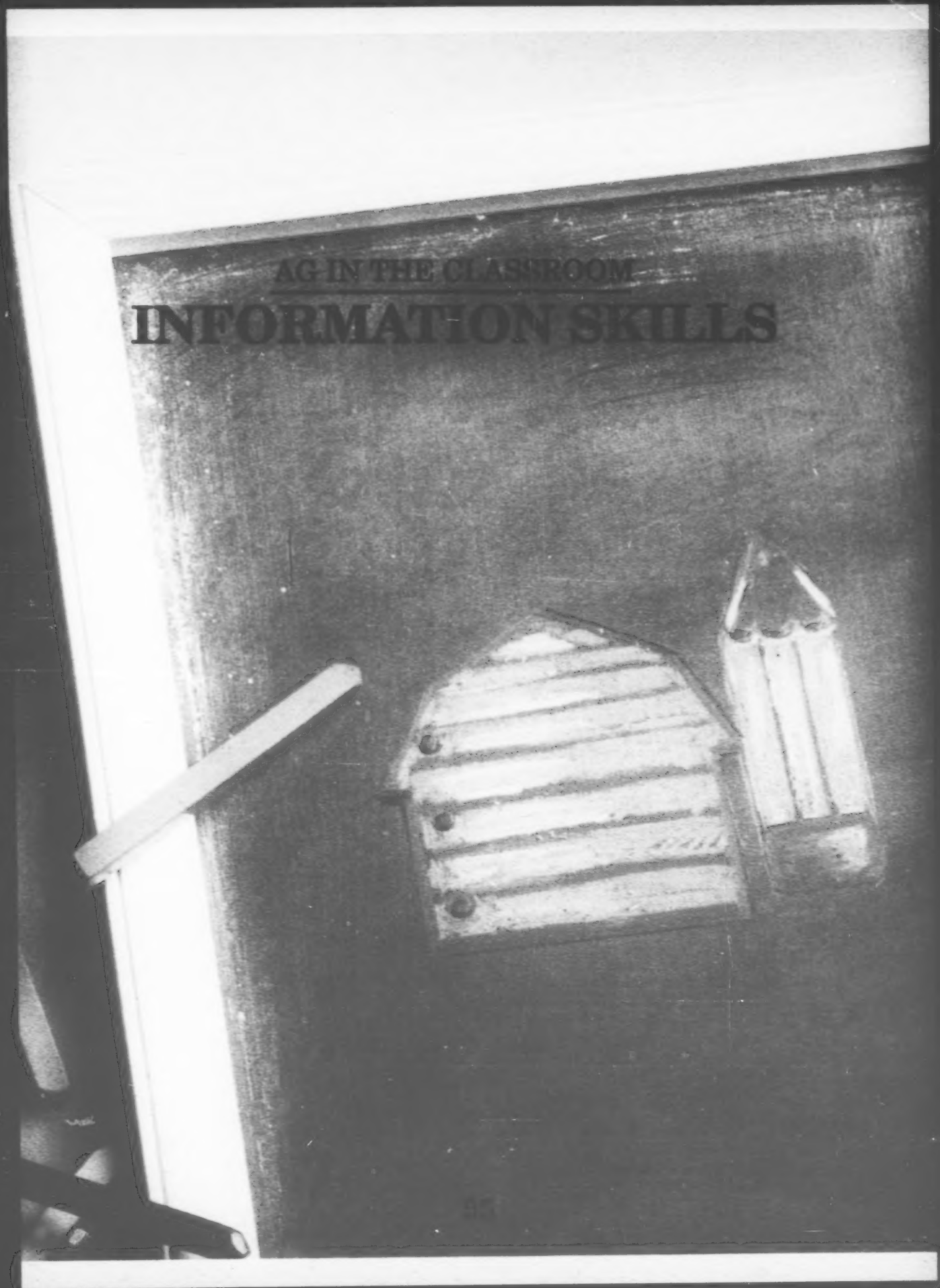
AG IN THE CLASSROOM
INFORMATION SKILLS

BEANS IN A BAG

IS 1

SUBJECT: Information Skills

GRADE: K-2

CONCEPT: V

COMMODITY: Horticulture

LEARNER OUTCOME:

Grades One through Two: III. E. Students will record concise notes from various sources.

LEARNER OBJECTIVE

Students will provide the four necessary things that a plant needs to live. The student will observe what happens to a seed when its needs are met.

ACTIVITY

A. Step-by-Step Instructions

1. Discuss what a plant needs to grow big and strong, using the background material.
2. Give each student a seal-locking bag, and place one or two handfuls of potting soil in each.
3. Give each student three or four bean seeds to push into the soil. Sprinkle in a few drops of water, and seal the bag. Label the bags with the students' names, then tape them to a window.
4. Have students record their observations on the student worksheet. They should see roots and sprouts begin to develop in three or four days.

B. Background

*All kinds of plants need four things to live--soil, water, sunlight and air. **Soil** anchors the plant and provides nutrients. The plant's roots pull the nutrients from the soil. **Water** moves the nutrients through the plant and makes it stand upright. **Sunlight** shines on the leaves and helps make **chlorophyll**. The plant uses the chlorophyll to make food. Plants "breathe in" **carbon dioxide** (CO2) from the air and "breathe out" **oxygen** (O2). People and animals need oxygen to breathe.*

Source: OSU Division of Agricultural Sciences and Natural Resources

C. Resources

Books

Bracher, Helen, *Busy Little Gardener*, Jelly Bean, 1990.
Imershein, Betsy, *The Work People Do: Farmer*, Julian Messner, 1990.
Kunhardt, Edith, *I Want to Be a Farmer*, Grosset & Dunlap, 1989.

Additional Resources

Children's Gardens: A Field Guide for Teachers, Parents and Volunteers, Common Ground Garden Program, 2615 S. Grand Ave., Suite 400, Los Angeles, CA 90007 (a gardening manual, $10, plus $2.50, shipping. Make checks payable to LA Harvest.).

The Growing Classroom: Teacher's Guide to Activities, General Feed and Seed/Let's Get Growing, 1900-B Commercial Way, Santa Cruz, CA 94065 ($33.75, plus $4 shipping).

Growlab: A Complete Guide to Gardening in the Classroom, National Gardening Association, 180 Flynn Ave., Burlington, VT 05401 (128-page softbound teacher's book, with teaching reproducibles).

D. Evaluation

Can the students describe what has happened to their seeds over time?

E. Related Activities

Give each student a measured container of water and one or two beans. Have students place the beans in the water and soak them overnight. The next day have students drain off the water and measure it to see how much is left, compared with how much they measured the day before. Now have them look at the seeds. Are they larger? How do they feel? Students may slip the seed coats off and examine the insides of the seeds or plant them for further observation. (If you choose planting, you will get better results if you use bean seeds instead of beans from the grocery store.)

Name_____

Beans In a Bag

Monday	Tuesday	Wednesday	Thursday	Friday

1. *Write the date in the small box in the top left corner every day.*
2. *Measure the height of your plant every day, and record in centimeters or inches.*
3. *Draw a picture of your plant every day in the large calendar box.*

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Ag in the Classroom

GET GROWING!

IS 2

SUBJECT: Information Skills

GRADE: K-2

CONCEPT: V

COMMODITY: Horticulture

LEARNER OUTCOME:
Grades One through Two: III. B. Students will record impressions and information from various sources.

LEARNER OBJECTIVE
To explain how farmers use natural resources to produce agricultural products.

LESSON

A. Step-by-Step Instructions

1. Discuss what a plant needs to grow big and strong. Include vocabulary words.
2. Share background information with students. Summarize for younger students.
3. Hand out student worksheets.

Worksheet A - Direct students to color their tomato plants by following the directions at the top of the worksheet.
Worksheet B - Have students follow the directions at the top of the page. The natural resource words should be placed in the correct blanks.
Worksheet C - (for grade K) Introduce students to the four things a plant needs to grow. Have students trace the words and color the pictures.

B. Background

Vocabulary

Natural Resource - *something that occurs in nature and is valuable to man.*
Soil - *naturally-occurring mixture of minerals, organic matter, water and air, which forms the surface of the land.*

All kinds of plants need four things to live: soil; water; sunlight and air. Soil anchors the plant and provides nutrients, which feed the plant through its roots. Water moves the nutrients through the plant and makes it stand upright. Sunlight shines on the leaves and helps make chlorophyll. The plant uses the chlorophyll to make food. Plants "breathe in" carbon dioxide (CO_2) and "breathe out" oxygen. People and animals need oxygen to breathe.

Source: OSU Cooperative Extension Service, Horticulture Dept.

C. Resources

Books

Bracher, Helen, *Busy Little Gardener,* Jelly Bean, 1990.
Imershein, Betsy, *The Work People Do: Farmer,* Julian Messner, 1990.
Kunhardt, Edith, *I Want to Be a Farmer,* Grosset & Dunlap, 1989.

Additional Resources

Children's Gardens: A Field Guide for Teachers, Parents and Volunteers, Common Ground Garden Program, 2615 S. Grand Ave., Ste. 400, Los Angeles, CA 90007 (a gardening manual, $10, plus $2.50, shipping. Make checks payable to LA Harvest.).

The Growing Classroom: Teacher's Guide to Activities, General Feed and Seed/Let's Get Growing, 1900-B Commercial Way, Santa Cruz, CA 94065 ($33.75, plus $4 shipping).

Growlab: A Complete Guide to Gardening in the Classroom, National Gardening Association, 180 Flynn Ave., Burlington, VT 05401 (128-page softbound teacher's book, with teaching reproducibles).

D. Evaluation

Worksheet A - The student should have colored the tomato plant, using the directions given on the student worksheet. The student should have drawn a line from the following natural resource words to the plant: air; water; soil; sunlight.
Worksheet B - Correct answers are as follows: 1. sunlight; 2. water; 3. air; 4. soil. Did the students color the pictures appropriately?
Worksheet C - Students should trace the resource words and color the pictures.

E. Related Activities

1. Have each student plant the same kind of seeds in two milk cartons. If possible use agricultural crops, such as corn, tomato, soybeans or wheat. Have each student provide one carton with all four of the natural resources the plant needs (soil, sun, air, water). The second carton should get only three of the resources. After two or three weeks compare the plants. *Why did some grow better than others? What natural resources do growing plants need.*

Resource	Altered Resource
soil	rocks
sun	dark
air	airtight bag or jar
water	dry

Add a third carton if you want to show what limited resources will produce.

Limited Resource
sand
artificial light
open jar or bag
water only when planting

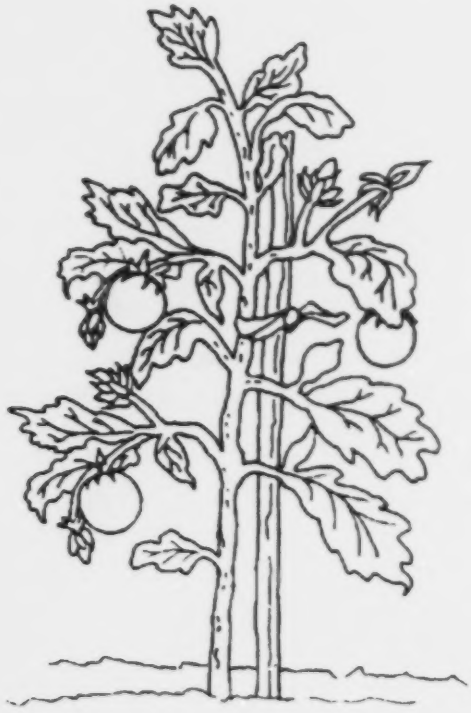
2. Use student worksheet B as a language arts lesson for grades 1-2. Have students fill in the blanks in the following sentences with the position words "above," "on," "over," or "under."

The sun is _____ the plant.
The rain falls _____ the ground.
The stem and leaves are _____ the ground.
The roots are _____ the ground.

Name _____

Get Growing! A

This is a tomato plant. The stem and leaves are green. Color them green on your tomato plant. The fruit on a tomato plant is red. Color all the tomatoes red.



trash

air

milk

water

soil

clouds

sunlight

paper

Draw a line from the four natural resource words to the plant.

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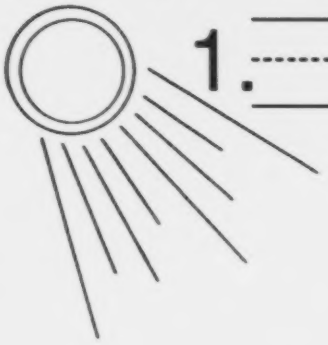
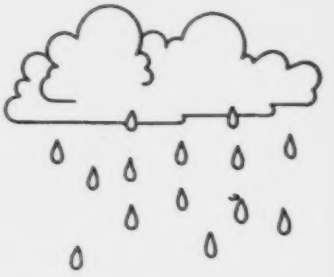
Name _____

Get Growing! B

Write the names of the four natural resources needed to grow a healthy plant. The word box will help you. Color the picture.

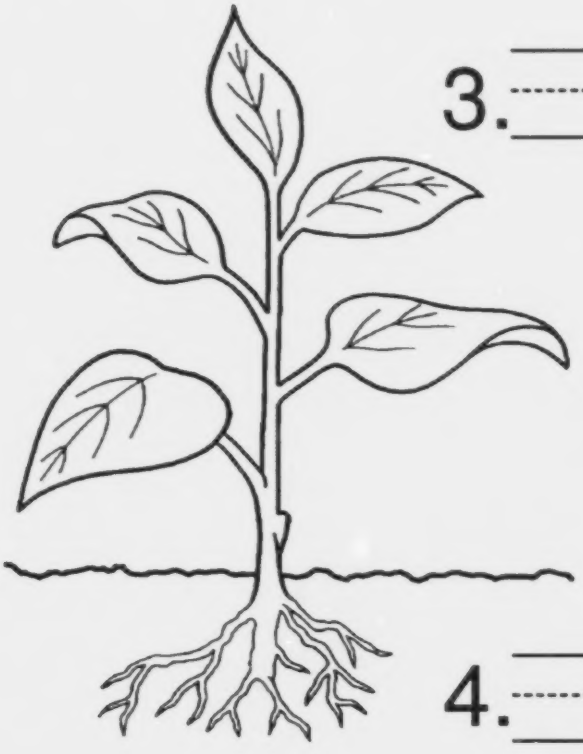


1. _____



2. _____

3. _____



Word Box	
sunlight	air
water	soil

4. _____

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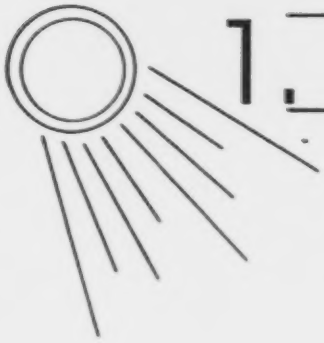
Name _____

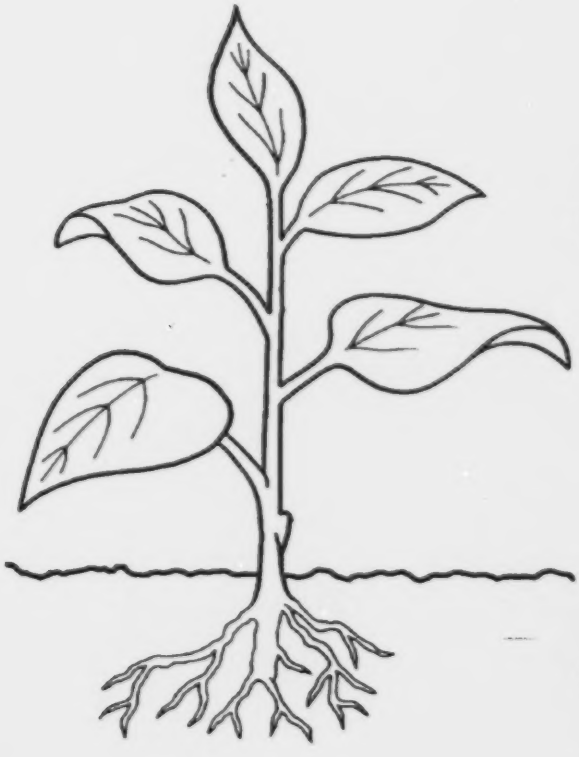
Get Growing! C

Trace over the four natural resource words needed to grow a healthy plant. Color the picture.



1. _____

2. _____



3. _____

4. _____

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THE STORY OF MILK

IS 3

SUBJECT: Information Skills

GRADE: 1

CONCEPT: III

COMMODITY: Dairy

LEARNER OUTCOME

Grade One: III. D. The student will learn to organize sequentially.

LEARNER OBJECTIVE

To learn where milk comes from and what foods are made from milk.

ACTIVITY

A. Step-by-Step Instructions

1. Read the background materials.
2. Hand out the student worksheets.
3. Have students color, cut out pictures and glue them above the appropriate sentences.

B. Background

Cows that are well cared for produce wholesome, healthy milk. The dairy farmer keeps the cows healthy by making sure they have plenty of green grass and hay to eat.

Every morning and evening the farmer milks the cows. Some farmers milk their cows by hand. Others use milking machines. The farmer will sell the cows' milk to a milk processing plant.

After the farmer milks the cow, he cools it and stores it in a stainless steel tank. The milk stays in the tank until it is time for it to go to the milk processing plant.

When it is time to take the milk to the processing plant, a stainless steel tank truck comes to the farm and pumps the milk from the cooling tank. The truck's tank acts like a huge thermos bottle and keeps the milk cool during the trip to the processing plant.

When the milk arrives at the processing plant, workers take it and make it into many delicious, healthy things to eat. Some of the milk goes into the cartons your parents buy at the store. The rest is made into things like butter, cheese, ice cream and cottage cheese.

Source: OSU Cooperative Extension Service, Animal Science Department

C. Resources

Books

Carrick, Donald, *Milk,* Greenwillow, 1985.
Gibbons, Gail, *The Milk Makers,* MacMillan, 1985.
Graff, Nancy Price, *The Strength of the Hills,* Little, Brown, 1989.
Gregory, O.B., and Wrigley, Elsie, *Milk,* Rourke, 1981.
McFarland, Cynthia, *Cows in the Parlor,* Atheneum, 1990.
Maestro, Giulio, and Carolyn Meyer, *Milk, Butter and Cheese: The Story of Dairy Products,* Morrow, 1974.

Additional Resources

Associated Milk Producers, Inc., 1700 N. Sooner Rd., Oklahoma City, OK 73111.
Associated Milk Producers, Inc., 6240 E. 15, Tulsa, OK 74112, (918) 835-6933.

D. Evaluation
Were students able to correctly place pictures above corresponding sentences?

E. Related Activities
1. Bring in samples of dairy products for students to taste.
2. Visit a local dairy farm to observe the operations.
3. Contact the nearest Associated Milk Producers, Inc., (see Resources) for names of milk processing plants and information on field trips.

Name _____

The Story of Milk

1. Dairy cows on the farm give milk every day.

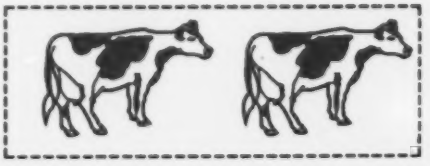
2. Milk is stored in a cooling tank on the farm.

3. Milk is pumped into a cooling tank on a truck and taken to the milk plant.

4. The dairy plant is where milk is made into things to eat.

5. Many good things to eat are made from milk.

Cut out the pictures and glue above the right sentence.



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FIND THE FARM ANIMALS

IS 4

SUBJECT: Information Skills

GRADES: 1-2

CONCEPT: I

COMMODITY: Farm Animals

LEARNER OUTCOME

Grade One: I. B. The student will understand the concept of classification systems for organization of information.

LEARNER OBJECTIVE

To identify farm animal words and pictures among a random group of words and pictures.

LESSON

A. Step-by-Step Instructions

1. Hand out student worksheet.
2. Discuss all words and pictures featured on the student worksheet.
3. Have students circle the farm ***animals*** pictured on the student worksheet.

B. Background

The farm animals on your student worksheet are just like the animals you would find on farms all over Oklahoma and the midwestern part of the United States. Of course, not all farms have the same kinds of animals. Some will have cows, while others will have pigs. Some farmers might raise turkeys and chickens, while others might raise bees or fish. Most will have dogs, and many will have horses. But all of these animals will be found somewhere on a farm in Oklahoma.

Source: OSU Division of Agricultural Sciences and Natural Resources

C. Resources

Books

Brown, Craig, *My Barn,* Greenwillow, 1991.
Brown, Margaret Wise, *Big Red Barn,* Random House, 1989.
Cousins, Lucy, *Farm Animals,* Tambourine, 1991.
Lindbergh, Reeve, *The Midnight Farm,* Dial Books for Young Readers, 1987.
Noble, Trinka Hakes, *The Day Jimmy's Boa Ate the Wash,* Dial, 1980.
Tresselt, Alvin, *Wake Up, Farm!* Lothrop, Lee and Shepard, 1991.

D. Evaluation

The students should find nine farm animals in the word and picture puzzle.

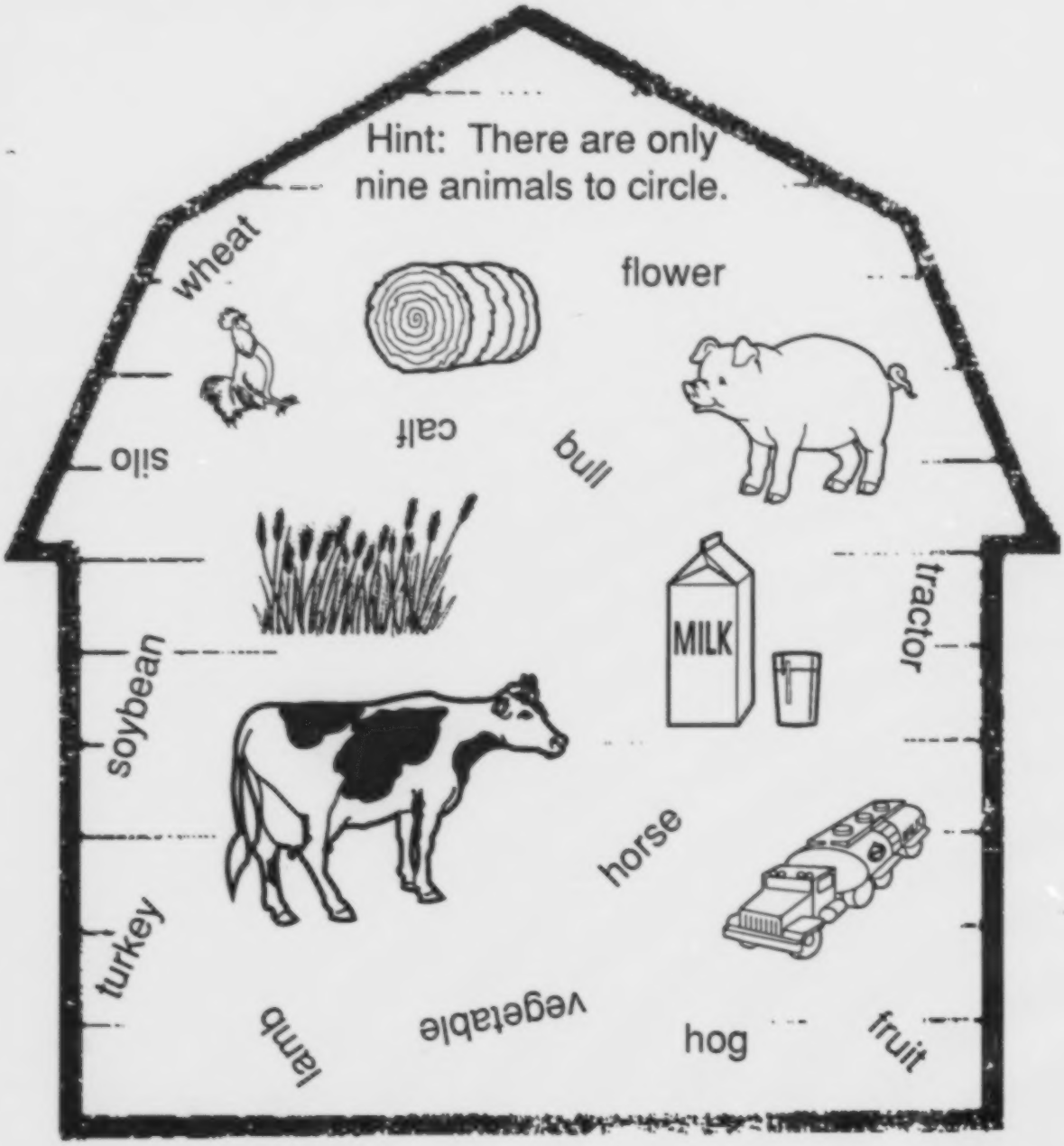
E. Related Activities

1. Put the puzzle words in alphabetical order.
2. Create a large class barnyard mural. Have students draw different farm animals, cut them out and place them in the scene.
3. Cut slips of paper with the names of the farm animals written on them. Have each student draw, then pantomime the animal he or she has drawn.

Name _____

Find the Farm Animals

Circle the farm animal words and the farm animal pictures.



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Ag in the Classroom

HAVE YOU THE TIME OF DAY? IS 5

SUBJECT: Information Skills **GRADES:** 1-2

CONCEPT: II **COMMODITY:** Dairy

LEARNER OUTCOME

Grade One: IV. A. The student will present information in prescribed format.

LEARNER OBJECTIVE

The student will record the time of day from a short word problem which illustrates some of the events in a farmer's day.

LESSON

A. Step-by-Step Instructions

1. Give students copies of student worksheets.
2. Read the short story aloud to your class.
3. Have students follow the directions on the student worksheets. The three worksheets use different learning skills.

Worksheet A - The student must scan the story for the information, then put the hand in the correct position on the clock face.

Worksheet B - The student will draw the hands correctly on the clock face, rewrite the time, then write a.m. or p.m., whichever is correct.

Worksheet C - The student will fill in the clock faces to reflect his or her daily schedule, for example:

Wake up	6:30 a.m.
Recess	10:00 a.m.

B. Background

The American farmer works hard. Many farmers have to get up very early to care for their animals or do other chores. On the dairy farm, the farmer's work day begins and ends with milking. On other farms, the farmer may begin working in the field at first light, take a break during the heat of the day, then go back to the field in the late afternoon.

Source: OSU Cooperative Extension Service, Animal Science Dept.

C. Resources

Books

Baylor, Byrd, *The Way to Start a Day,* Macmillan, 1978.
Lillie, Patricia, *When the Rooster Crowed,* Greenwillow, 1991.
Martin, Bill Jr., and John Archambault, *Barnyard Dance!* Henry Holt & Co., 1986.
Tresselt, Alvin, *Sun Up,* Lothrop, Lee & Sheperd, 1991.
Tresselt, Alvin, *Wake Up Farm!* Lothrop, Lee & Sheperd, 1991.

Additional Resources

"Farm Life," Right On Programs, 755 New York, Huntington, NY 11743 (Apple or Commodore software disk, $25, plus $4 for handling).

"My Family Farm," Illinois Farm Bureau, Field Services Division, 1701 Towanda Ave., Bloomington, IL 61701 (bulletin board kit for grades 1-3, $4.75).

D. Evaluation

A teacher created answer sheet would best be suited for worksheets A and B.

E. Related Activities

1. Have each student write a picture story about his or her day. As they write their stories, they can draw clock faces to show what time of day each of the events occurred.
2. Post a daily schedule somewhere in the classroom. Include all the important times (bathroom breaks, recess, etc.) Draw clocks with the hands in positions corresponding to the times you have posted.

Name _____

Have You the Time of Day?

Read the story. Use the facts to complete the clock problems.

The day begins early on the farm. Farmer Smith is helping out this week at his neighbor's dairy. Farmer Brown's son usually helps with the milking, but he is away for a short vacation. While Farmer Brown's son is away the cows must still be milked.

Farmer Smith will get up at 4:30 a.m. in order to be at the dairy and ready to milk by 5:30 a.m. The milk truck will come at 8:00 a.m. That means the milking and cleaning must be finished by then.

Mr. Smith still has his own work to do. He must hurry home to feed his sheep and check on the beef cattle in the field. At 11:00 a.m., after Mr. Smith finishes his usual chores, he will have time to fix a sandwich for lunch before heading for the field.

Mr. Smith got a new tractor last year. It has a cab with an air-conditioner, so Mr. Smith can work during the heat of the day. At 2:00 p.m., when the sun is hot, Farmer Smith is busy baling hay.

Farmer Smith will stop at 4:30 p.m. to go help Farmer Brown milk. He will eat dinner at 7:00 p.m. with his wife, then go back to the hay field.

The Smiths will be in bed early tonight, probably by 9:30 p.m. It has been a long day, and the new day will begin early on the farm.

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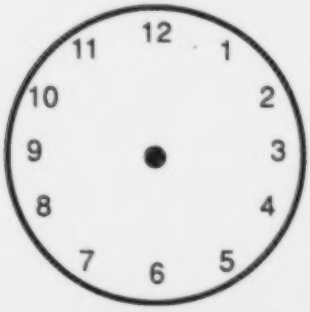
Name _____

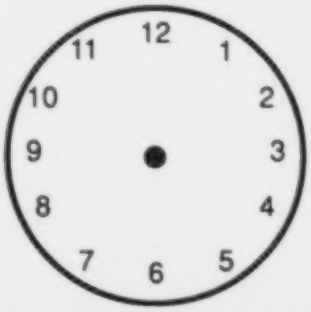
Have You the Time of Day? A

Draw the hands on the clock, using the story as a guide.

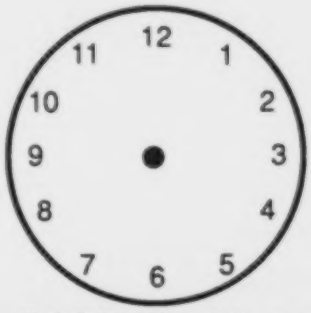


What time did Farmer Smith get up?

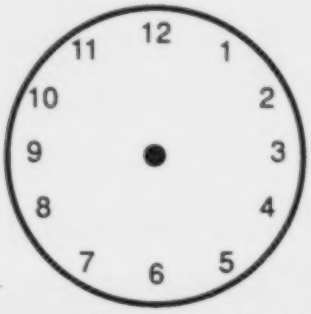
When did milking begin at the dairy?



What time did the milk truck come?



When did Mr. Smith eat lunch?



What time did the Smith family eat dinner?

When did the Smith family go to bed?

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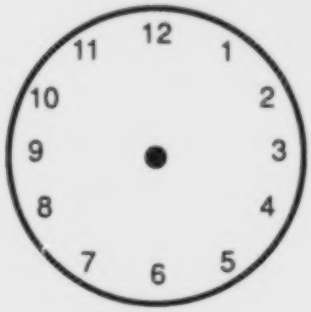
Name _____

Have You the Time of Day? B

Draw the hands on the clocks. Write the times.

Get up

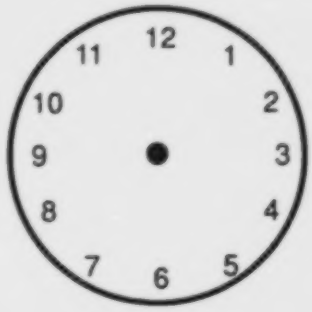
4:30 a.m.



____:_____

Milk

5:30 a.m.



____:_____

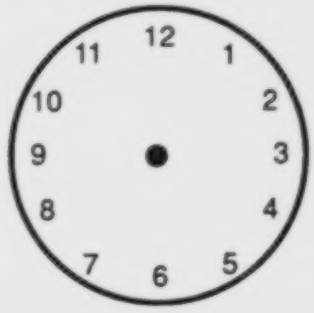
Milk truck

8:00 a.m.

____:_____

Lunch

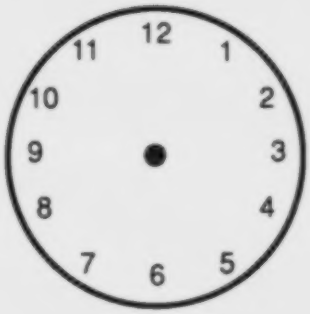
11:00 a.m.



____:_____

Dinner

7:00 p.m.



____:_____

Bed

9:30 p.m.

____:_____

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Name _____

Have You the Time of Day? C

Write the times you do things in your day. Draw the hands on the clocks, then write the times.

Wake up.

____:_____

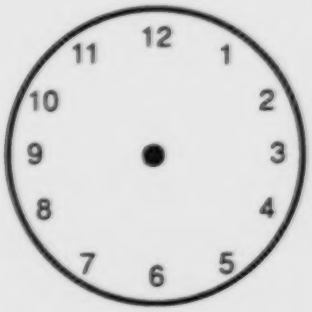
_____

____:_____

_____

____:_____

_____



____:_____

_____

____:_____

_____

____:_____

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SHORT STORIES

IS 6

SUBJECT: Information Skills

GRADES: 1-2

CONCEPT: I

COMMODITY: Farm Animals

LEARNER OUTCOME

Grade Two: II. F. The student will extract main ideas from selected information sources.

LEARNER OBJECTIVE

To sharpen the student's listening skills, comprehension abilities and his/her understanding of the process involved in producing several agriculture products.

ACTIVITY

A. Step-by-Step Instructions

1. Read the attached short stories to students.
2. After each story, give students time to answer the questions on the student worksheets.
3. Share background material for each story after students have completed their student worksheets.

B. Background

All of the products described in the short stories are very important to the agriculture industry in Oklahoma.

1st story *Most chicken farmers put eggs into an incubator instead of letting the hen sit on them. In the incubator, the eggs stay warm and moist. After 21 days, the baby chick has taken form and is strong enough to break through the eggshell. Just a few minutes later, the chick can stand up. In this story, the hen is a chicken, but that isn't always the case. Female turkeys are also called "hens." A good laying hen lays 19-20 dozen eggs a year. Before the eggs get to the store they are washed with hot water and cleaned in an "egg washer." Then they are sorted by weight and size in an "egg grader."*

2nd story *Pigs are very smart, even smarter than horses. They were one of the first kinds of animals to be tamed. "Pig' and "hog' are two different names for members of the swine family. The correct word for baby pigs and young swine is "pigs." Full-grown swine are called "hogs." A female hog is called a "sow." A male hog is called a "boar." Pork chops, ham and bacon aren't the only foods we get from hogs. There is also pork loin, spare ribs, Boston butt roast, hog jowl, pig feet and fat or lard. Oklahoma has nearly a quarter of a million hogs and more than 6,000 hog farms. Oklahoma hogs are sent all over the U.S. to improve breeding herds.*

3rd story *Oklahoma grows more wheat than any other state in the U.S. except Kansas. Wheat is one of the oldest and most important crops grown for food. Almost every state in the U.S. grows wheat. Over 7-8 million acres of wheat are planted in Oklahoma each year. Oklahoma farmers sell over $244 million worth of wheat to foreign countries every year. Some other foods we get from wheat are macaroni, noodles, biscuits, cakes and pastries. Some wheat grain is also used for animal food.*

4th story *Fish farming is called "aquaculture." It is the newest kind of farming. Aquaculture is becoming more common in Oklahoma and all over the U.S. It will be important in the future because farmers can grow a lot of food in a small amount of space. The two most common types of fish for fish farming are trout and catfish. Catfish farmers must have different ponds for fish of different ages. They must always keep younger fish to replace the mature fish as they sell them. Fish farmers feed their fish special food that is compressed into pellets.*

5th story *One dairy cow can give as much as 160 glasses of milk in one day! The fresh milk we drink comes from dairy farms. Dairy farms have to be very clean. Cheese, ice cream, condensed milk and powdered milk is made from the milk produced on dairy farms.*

OSU Cooperative Extension Service, Animal Science Dept.

C. Resources

Books

Adams, Pam (illus.), *Old McDonald Had a Farm,* Child's Play Ltd., 1975.
Brown, Craig, *My Barn,* Greenwillow, 1991.
Brown, Margaret Wise, *Big Red Barn,* Random House, 1989.
Lindbergh, Reeve, and Susan Jeffers, *Benjamin's Barn,* Dial Books for Young Readers, 1990.
Lindbergh, Reeve. *The Midnight Farm.* Dial Books for Young Readers, 1987.
Pryor, Bonnie. *Greenbrook Farm.* Simon & Schuster Books for Young Readers, 1991.

Additional Resources

"A Glossary of Farm Terms," May, 1988, U.S. Department of Agriculture.
Good Apple Catalog, 1204 Buchanan St., Box 299, Carthage, IL 62321-0299, 1-800-435-7234 (farm animals poster, GA1371, 25 for $6.25, additional quantities, 25 cents each.)
"My Family Farm," Illinois Farm Bureau, Field Services Division, 1701 Towanda Ave., Bloomington, IL 61701 (bulletin board kit for grades 1-3, $4.75.)

D. Evaluation

The correct answers are as follows: 1. A hen lays eggs; 2. A mother pig is called a sow; 3. Bread starts as wheat, or a wheat seed; 4. A group of fish is called a school; 5. Cows make milk.

E. Related Activities

Choose one of the short stories and print each sentence from that story on a separate strip of poster board. Divide the students into groups and have the groups put the strips in the correct sequence.

SHORT STORIES

1. A chicken lays an egg. The hen sits on the egg. In about 21 days, the egg hatches. A baby chicken breaks out of the eggshell. A baby chicken is called a chick. Baby chicks eat grain. They grow very fast.

2. A mother pig gives birth to baby pigs. The pigs get milk from their mother. As they grow bigger, they start to eat grain. The pigs grow very fast. By the time they are five months old they weigh over 200 pounds. Now they are called "hogs," and it is time to send them to the butcher. The meat the butcher gets from the hogs is called "pork." The butcher cuts the pork and makes it into pork chops, ham, roasts, sausage and bacon.

3. A wheat seed is called a kernel. One kernel of wheat grows into one wheat plant. The wheat plant makes a head that has many kernels. The farmer collects the wheat in big machines called combines. Then the wheat is stored in big storage tanks, called grain elevators, until it is time to send it to a miller. The miller grinds the wheat into flour. Then a baker makes the flour into bread, crackers, donuts, cookies, cakes and other good things to eat.

4. A fish lays a spawn of eggs in the water. The baby fish that hatch out of the eggs are called fingerlings. They swim in schools with other fish that are just their size and just like them. When the fish grow, people catch them to eat. Some people raise fish as a crop. Some of the fish you buy in the store may have been raised that way.

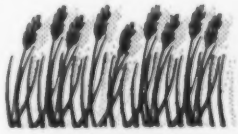
5. A mother dairy animal is called a cow. A cow gives milk, which she uses to feed her baby. The baby is called a calf. Calves only drink the cow's milk for a couple of days. After that they start to drink a milk replacement made from milk products. After the calf stops drinking the cow's milk, the dairy farmer continues to milk the cow. The farmer stores the milk in a large cooling tank until a truck comes to take it to the processing plant. There the milk is made into cheese, butter, ice cream and milk. Dairy farmers must milk their cows every morning and every night. It takes about five minutes to milk a cow with a milking machine.

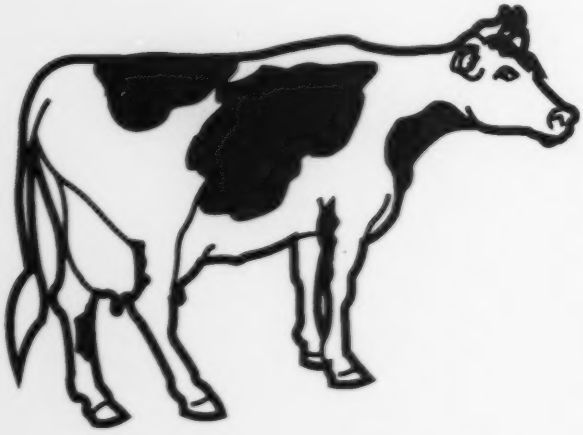
Name _____

Short Stories

The questions below come from the farm stories you just heard. Write the correct answer in the blank. If you need help, use the Answer Box.

1. What does a hen lay?_____
2. What is a mother pig called?_____
3. What does bread start as?_____
4. What is a group of fish called?_____
5. What do cows make?_____





Answer Box

milk
wheat
chick
sow
eggs
school

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Ag in the Classroom

SPROUTING

IS 7

SUBJECT: Information Skills

GRADES: 1-2

CONCEPT: V

COMMODITY: Horticulture

LEARNER OUTCOME

Grades One through Two: III. D. Students will organize information sequentially.

LEARNER OBJECTIVE

Students will learn the different stages of sprouting a seed.

LESSON

A. Step-by-Step Instructions

1. Ask students what seeds need to grow. *Does the seed change? Does the placement of the seed change the direction the stem and roots will grow? Why do we plant in the spring?*
2. Share background materials.
3. Pass out student worksheet. Have students number the pictures in the correct order.

B. Background

When a seed gets light, air and water, it starts to change. The stem and the root emerge from the seed. This is called the ***germination process.***

Germination occurs faster if the seed is in a warm place. This is why we plant seeds in the spring, when the ground is warming up.

The seed is the food for the baby plant until it can use its root system. A seed is germinated when it can grow without the food stored in the seed.

The pictures on the student worksheet show the various stages in a pea seed's development.

Source: OSU Cooperative Extension Service, Horticulture Department

C. Resources

Books

Aliki, *The Story of Johnny Appleseed,* Simon & Schuster, 1987.

Barden, Helen, *Busy Little Gardener,* Jelly Bean, 1990.

Bjork, Christina, and Lena Anderson, *Linnea's Windowsill Garden,* R & S Books, 1988.

Merrill, Claire, *A Seed is a Promise*, Scholastic, 1973.

Additional Resources

"The Great Green Bean," Yarnhill County Women for Agriculture, P.O. Box 101, Dayton, OR 97114 (videotape, $12.08).

New England Sprout Grower's Association, P. O. Box 270, Marion, MA 02738, 508-763-2577 (free activity sheets on sprouts for grades K-6).

D. Evaluation

Can students describe the germination process and understand that seeds sprout faster in warm places? Students should number the pictures on their worksheets as follows (left to right): 1; 6; 3; 5; 4; 2.

E. Related Activities

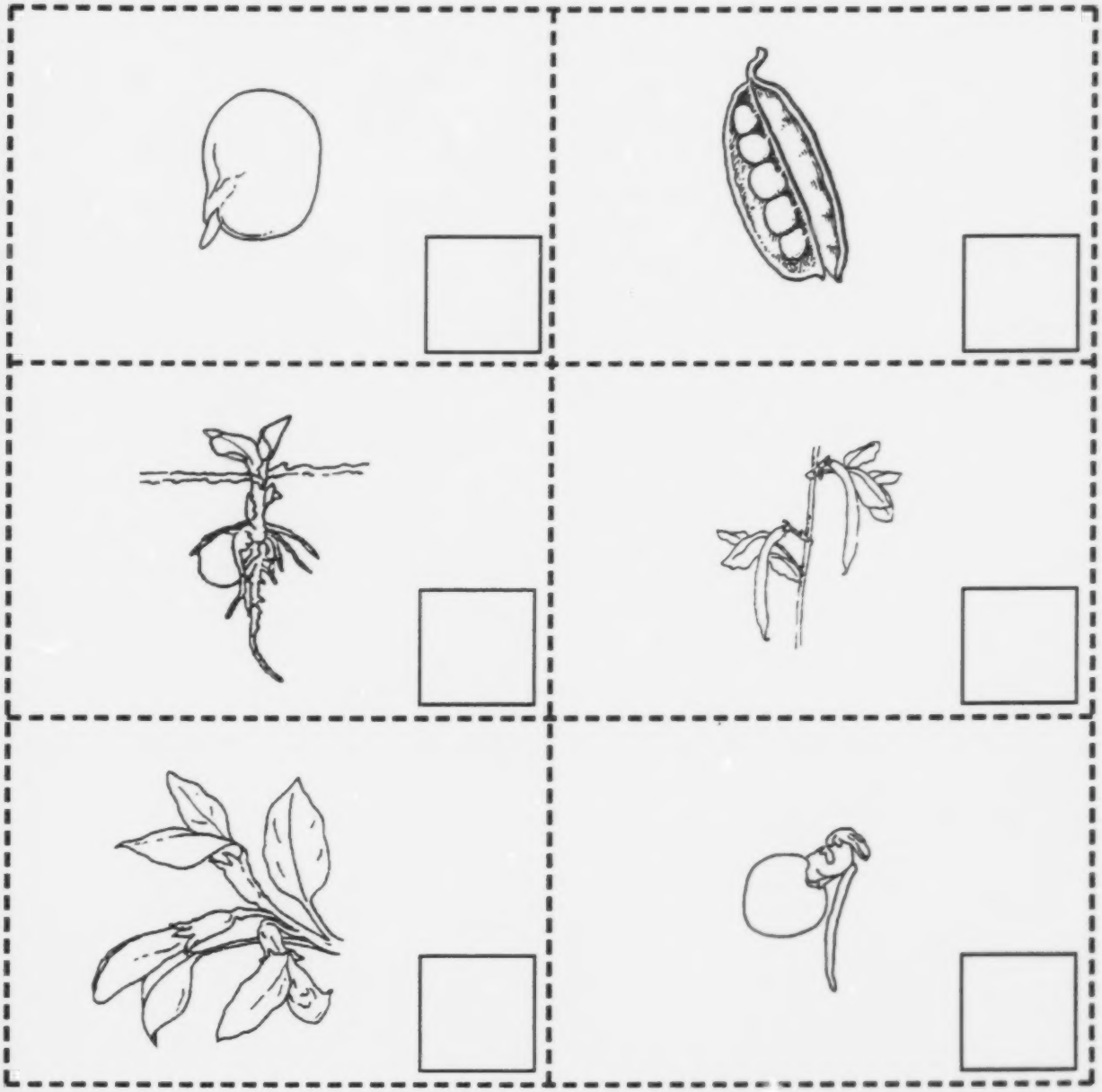
Seeds grow best in what kind of weather? Put wet paper towels in four different paper plates. Put the same number of seeds on each plate. (Radish, lettuce, corn and bean seeds all sprout quickly. Make sure you use all the same kind of

seeds.) Cover each plate with another wet paper towel. Have students place the plates in different locations (in the freezer, in the refrigerator, near a heating vent or radiator, outside a window) and keep records of their observations *(Which seeds sprouted quickest? How many seeds sprouted?).*

Name _____

Sprouting

Cut out these pictures and put them in the correct order. Number them from one to six.



Glue or staple the pictures in order to make a book.

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THE MILK ROUTE

IS 8

SUBJECT: Information Skills

GRADES: 1-2

CONCEPT: II

COMMODITY: Dairy

LEARNER OUTCOME

Grade One: III. D. The student will organize sequentially.

LEARNER OBJECTIVE

The student will associate plants, animals, and food products.

LESSON

A. Step-by-Step Instructions

1. Hand out activity sheet, and study the pictures with your students.
2. Read background information to students.
3. Have students number pictures according to when the corresponding step occurred in the background materials. Color the story pictures.
4. Have one student retell the story of the milk's journey from green grass to refrigerator shelf.
5. Introduce the vocabulary word "route."

B. Background

The milk we drink each day takes a long route from the cow to your table. Most of us simply open the refrigerator each morning, and the carton of milk is sitting there on the shelf. But the journey starts long before that.

You probably think the journey starts with the dairy cow. Actually, it starts even sooner, with the green grass and other feeds the dairy cow eats. The protein and energy from the green grass and feed help the cow produce milk in her udder. The udder is where the cow's milk is stored until the farmer gets ready to clean and milk her.

All the milk goes into a cooling tank until the milk truck arrives. The milk truck has a big, cool tank for the milk to ride in so it will not spoil. The truck carries the milk to the processing plant.

Workers at the plant put it through machines that heat it up to kill any harmful bacteria. This is what it means for milk to be ***pasteurized****. After the pasteurized milk is cooled, some of it is made into cottage cheese, cheese, whipping cream, sour cream, butter or ice cream.*

Most of the milk is put through machines that break up the fat so it won't rise to the top. This is ***homogenized*** *milk.*

At last, the milk goes into cartons so your parents can buy it at the grocery store. The milk is ready for you to drink and help you build strong bones and muscles.

Source: Oklahoma Cooperative Extension Service, Animal Science Dept.

C. Resources

Books

Carrick, Donald, *Milk*, Greenwillow, 1985.

McFarland, Cynthia, *Cows In The Parlor*, Atheneum, 1990.

Additional Resources

"Dairy Information," California Milk Advisory Board, Communication Services, P.O. Box 4680, Modesto, CA 95352 (lesson plans, posters).

Mississippi Farm Bureau Federation, P. O. Box 1972, Jackson, MS 39215-1972 (free 10-page activity unit for grades K-1, one per teacher).

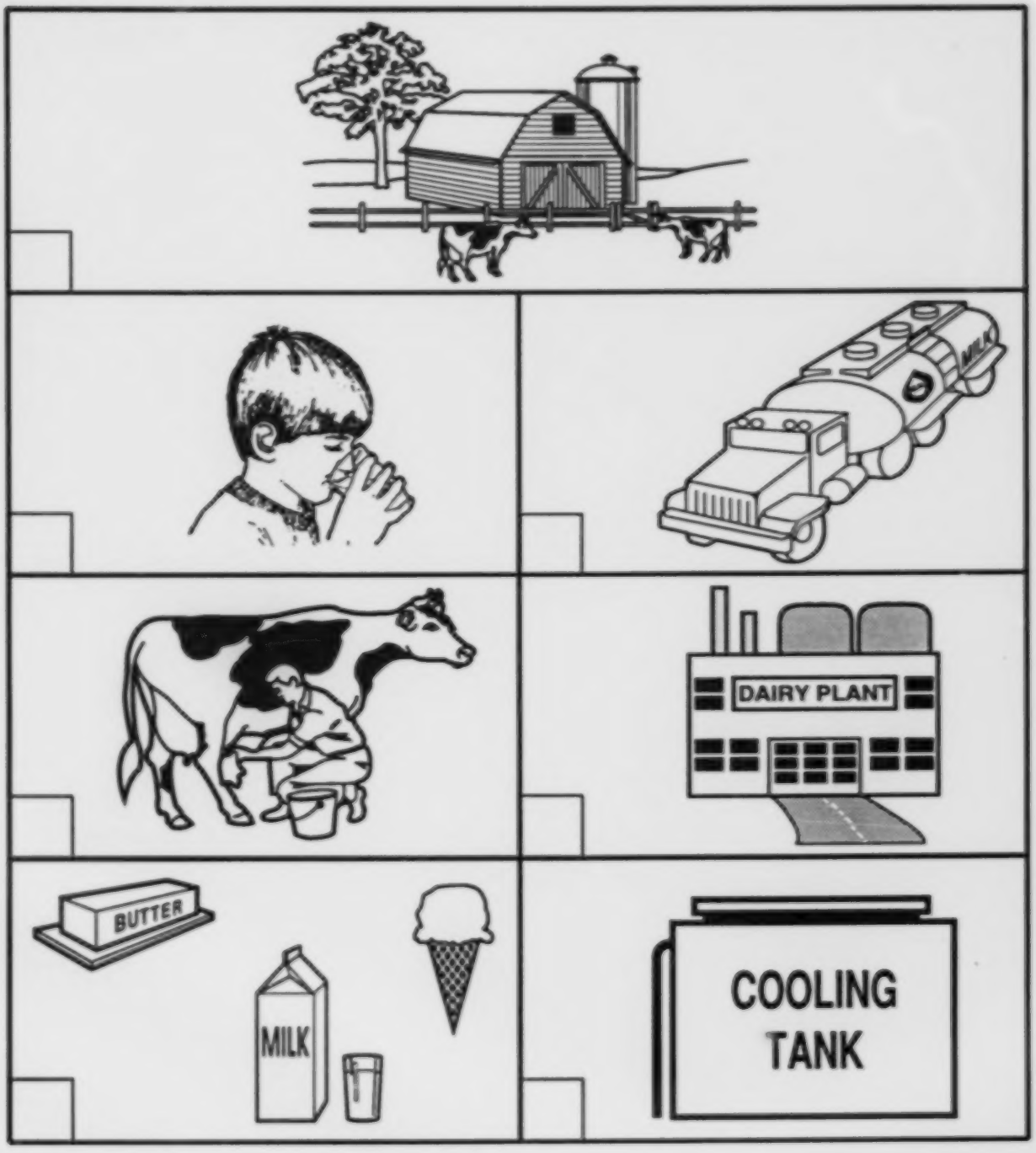
D. Evaluation
Did the student number the pictures correctly? Does the student understand that milk originates from the cow eating the green grass, hay and other foods?

E. Related Activities
Take a field trip to a dairy farm or a milk processing plant.

Name _____

The Milk Route

Number the pictures.



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SOMETHING'S HIDING INSIDE

SUBJECT: Information Skills **GRADE:** 2

CONCEPT: IV **COMMODITY:** Horticulture

LEARNER OUTCOME

Grade Two: I. B. The student will understand the concept of classification systems for the organization of information.

LEARNER OBJECTIVE

The student will learn and identify the parts of a seed.

LESSON

A. Step-by-Step Instructions

1. Bring the following supplies to class: four or five different kinds of garden seed (navy bean, lima bean, peanut, watermelon, etc.); magnifying glasses; paper plates; paper cups; toothpicks.
2. Put the seeds in paper plates, one paper plate for each variety, and label the plates according to the seed variety. Have students take one seed from each plate. Then have them examine the seeds for size, color and texture. Students should look for a white spot on each seed. This is where the seed was attached to the mother plant.
3. Explain that the outside of the seed is covered by a seed coat, or skin, that protects what is inside. To demonstrate what is inside, give each student a cup. Students should label their cups before filling them half full with water and adding the seeds.
4. The next day, draw a diagram on the chalk board or overhead projector, showing the opened seed. Label the three major parts: the seed coat; the embryo and the cotyledons (you may wish to use the sheet titled "The Parts of A Seed" from the Pattern Page Section of this book as an illustration). Discuss the three major parts of the seed, using the background materials.
5. Have students identify the three parts of the seeds in their cups and label them on the student worksheet. The seed coats can easily be removed, using a toothpick. After students open the seed they will see the embryo inside. The rest of the seed is the cotyledons.

B. Background

A seed is a protective case surrounding a new plant. The seed coat is just that, a coat. It protects the "embryo," or baby plant, from rough treatment, cold and heat. This embryo grows into the new big plant. When it is soaked in water, the seed coat will soften and let go, allowing the embryo to push through and grow. A major portion of the seed provides the embryo with food. The rest of the seed, the "cotyledons," provide food for the new plant until it begins making its own food. The cotyledons supply the energy for the baby plant to grow and produce roots. The entire amount of stored food will be used up by the time roots have been established.

Source: OSU Cooperative Extension Service, Horticulture Dept.

C. Resources

Books

Barden, Helen, *Busy Little Gardener,* Jelly Bean, 1990.
Claridge, Marit, and John Shackell, *A Simple Introduction to Living Things,* Usborne, 1985.

Heller, Ruth, *The Reason for a Flower*, Grosset and Dunlap, 1983.
Kirkpatrick, Rena K., *Look at Seeds and Weeds*, Raintree Children's Books, 1978.

Additional Resources

The Growing Classroom: Teacher's Guide to Activities, General Feed and Seed/Let's Get Growing, 1900-B Commercial Way, Santa Cruz, CA 94065 ($33.75, plus $4 shipping).

Growlab: A Complete Guide to Gardening in the Classroom, National Gardening Association, 180 Flynn Ave., Burlington, VT 05401 (128-page softbound teacher's book, $14.95, plus $3 shipping).

D. Evaluation

Students should be able to identify the three parts of the seed: (a) the seed coat; (b) the cotyledon (food source); and (c) the embryo (baby plant).

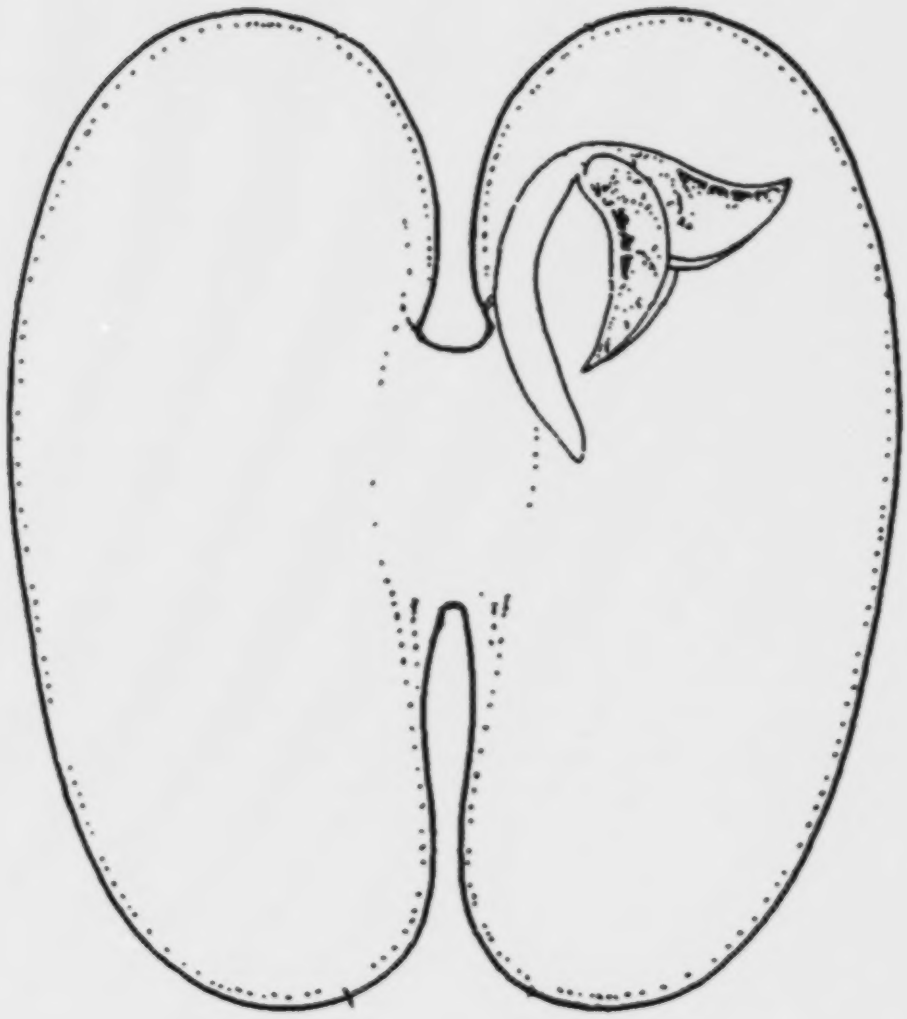
E. Related Activities

1. Cut open different fruits and vegetables. Have students examine and compare the seeds. *Does the size of the seed determine the size of the plant?* Soak seeds overnight, and allow students to peel back the seed coat and look inside each one.
2. Assign students to groups of two or three. Have them make seed collections of common fruits and vegetables Label the collections and put them on display.
3. Use seeds for sorting activities. Have students sort bowls of seeds by size, color, texture or type (fruit or vegetable).

Name _____

Something's Hiding Inside A

Label the three parts of a seed. Color.



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Name _____

Something's Hiding Inside B

Fill in this chart with words or pictures to describe the seeds you have collected

Type of Seed	Shape Draw the Seed	Color	Size (small, medium, large)	Texture

Suggested words to use in chart:

curved	round	brown	large	smooth
fat	flat	yellow	medium	rough
wide	thin	green	small	sharp
long	pointed	white	hard	wrinkled

On the back: Tell how each of your seeds can be scattered.

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AG IN THE CLASSROOM
MATHEMATICS

BABY ANIMALS TO COUNT M 1

SUBJECT: Mathematics GRADES: K-2

CONCEPT: I COMMODITY: Farm Animals

LEARNER OUTCOME
Grade One: VI. C. The student will learn to read and write numerals.

LEARNER OBJECTIVE
The student will learn to count the baby animals and place the correct numbers in the blanks.

LESSON
A. Step-by-Step Instructions
1. Review the counting process by touching objects or pictures. Count out loud as a class.
2. Hand out student worksheets. Discuss the animals featured on the page.
3. Explain and discuss the mother/baby relationship.
4. Have the students count the number of babies on the student worksheet.

B. Background

Spring is an exciting time in the barnyard. With the changing of the seasons comes the beginning of new life. Spring is the time of year when most farm animals are born.

Chicks hatch from eggs. It takes about three weeks for them to develop and come out of their eggshells. Every chick is born with a small tooth on its beak, which helps it peck its way out of the shell.

Pigs can have from four to 14 offspring. To help protect the babies the mother, or sow, is put in a "farrowing crate." This crate keeps the mother from lying on her new babies and crushing them. It helps keep the baby pigs alive and does not hurt the mother pig.

As soon as ducklings hatch from their eggs the mother duck leads them to water. Ducklings already know how to swim. They are born with the instinct. In the wild, the ducklings must take that first swim quickly, because that is the only way it has of protecting itself from predators.

A ewe, or mother sheep, usually gives birth to one, two or sometimes three lambs at a time. The baby lambs stay with their mother for four to five months and live off their mother's milk. During this time the sheep are sometimes many miles from the safety of the farmer's barn. Some sheep farmers use guard dogs to protect the sheep from coyotes and other wild animals. The farmers will train the dog by raising it with the sheep.

Source: OSU Cooperative Extension Service, Animal Science and 4-H Departments

C. Resources

Books

Brown, Margaret Wise, *Big Red Barn,* Random House, 1989.
Demi, *Cuddly Chick,* Putnam, 1988.
James, Robin, *Baby Farm Animals,* Price, Stern, Sloan, 1983.
Williams, Garth, *Baby Farm Animals,* A Golden Book, 1958.
Yoshi, *1,2,3.* Picture Book Studio, 1990.

D. Evaluation
Correct answers for the student worksheet are as follows: five pigs; two

ducklings; three chicks; two lambs. Total number of baby farm animals, 12.

E. Related Activities

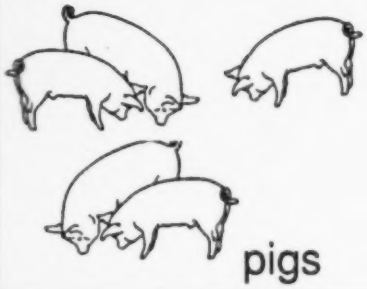
1. If you live in a rural area, visit a barnyard. A vocational-agriculture teacher, county Extension agent, or parent can help you make arrangements.
2. Some 4-H agents offer embryology projects. Students can watch chicks hatch in the classroom and get experience caring for living things. Contact your county Extension office for more information.

Name _____

Baby Animals to Count

Count the baby farm animals and write the number on the line next to them. How many baby farm animals in all?_____

sow



pigs

_____

duck

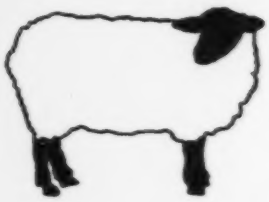
ducklings

_____

hen

chicks

_____



ewe

lambs

_____

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COUNT THE ANIMALS M 2

SUBJECT: Mathematics GRADES: K-2

CONCEPT: I COMMODITY: Farm Animals

LEARNER OUTCOME
Grade One: VI. A. The student will learn to compare sets by size and quantity.

LEARNER OBJECTIVE
To increase the student's ability to count objects and relate them to a given numeral.

LESSON
A. Step-by-Step Instructions
1. Hand out the student worksheets.
2. Have students count the number of animals in each group and draw a line from the group to the correct numeral.

B. Background
All the animals on your worksheet are agriculture products grown in Oklahoma.

***Catfish** are raised and sold by catfish farmers. Catfish farming is a growing business in Oklahoma. In the wild, catfish get their food from the bottom of the lake, but the fish on catfish farms get a nutritionally balanced diet from the farmer. They can get their oxygen from either the water or the air. Catfish grow very fast. Young catfish will more than double their weight and be ready for harvest within six months. Fish farming is called "aquaculture."*

***Sheep** are different from other livestock because they are raised both for their meat and their wool. Lamb meat comes from sheep that are younger than one year. Meat from older sheep is called mutton. The sheep's wool is sheared. Shearing a sheep's wool is just like giving it a haircut. Shearing does not hurt the sheep. The wool grows right back in a few months. The most popular sheep breeds at Oklahoma livestock shows and fairs are the Hampshire, Suffolk, Dorset, Shropshires and Southdowns.*

***Rabbits** are also raised both for fur and meat. Raising rabbits takes very little space, so they are a good thing for people living on small farms to raise. Rabbit meat is high in protein and low in fat. A female rabbit is called a doe, and a male rabbit is called a buck. Baby rabbits are called bunnies. They are born with no fur. One doe can have as many as 50 bunnies a year. Rabbit skins are used to make fur garments, gloves, slippers, collars and cuffs. They are also used for making felt. Some of the highest quality men's hats are made from rabbit fur. The best rabbit fur is solid white because it is easier to dye.*

***Chickens** are also grown on farms in Oklahoma. Chicken feathers can be many different colors, but most of the chickens grown for meat or eggs have white feathers. Laying hens may produce 20-22 dozen eggs (240-264) each year. Broilers are chickens produced for meat and are grown mostly in eastern Oklahoma.*

*The meat we get from **pigs** is called pork. Pork is made into bacon, chops, roasts, ham and pork sausage. Pigs eat corn and other grains that make them grow. A mother pig is called a sow. One mother pig has as many as 12-14 baby pigs per litter. She will have two litters every year. Most people think of pigs as being dirty, but they are really some of the cleanest animals around. They just need water and mud to keep cool, because they cannot perspire like people do.*

***Cows** are female dairy or beef animals. Some other female animals such as*

whales, moose, and elephants are also called cows. Dairy cows are raised mostly for their milk. Beef cows are mainly used to produce calves, which are grown for meat.

OSU Cooperative Extension Service, Animal Sciences Dept.

C. Resources

Books

Potter, Tessa, and Donna Bailey, *Chickens and Eggs,* My World Books, Level 1B, Steck-Vaughn, 1990.

Potter, Tessa, *Cows on the Farm,* My World Books, Red Level, 1B. Steck-Vaughn, 1990.

Yoshi, *1,2,3,* Picture Book Studio, 1990.

D. Evaluation

The students should count two cows, three sheep, four rabbits, five chickens, six pigs, and seven fish.

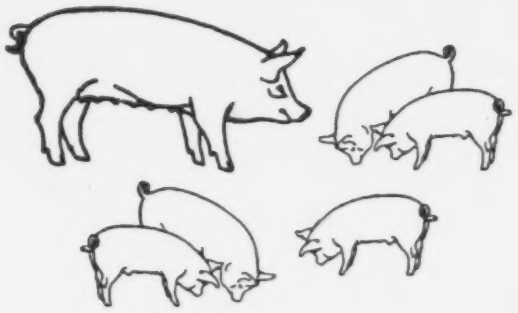
E. Related Activities

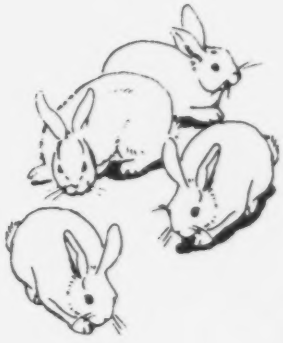
Find other pictures of groups of animals, and have the students count them.

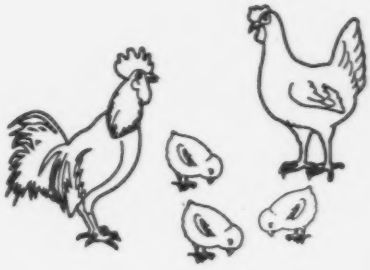
Name _____

Count the Animals

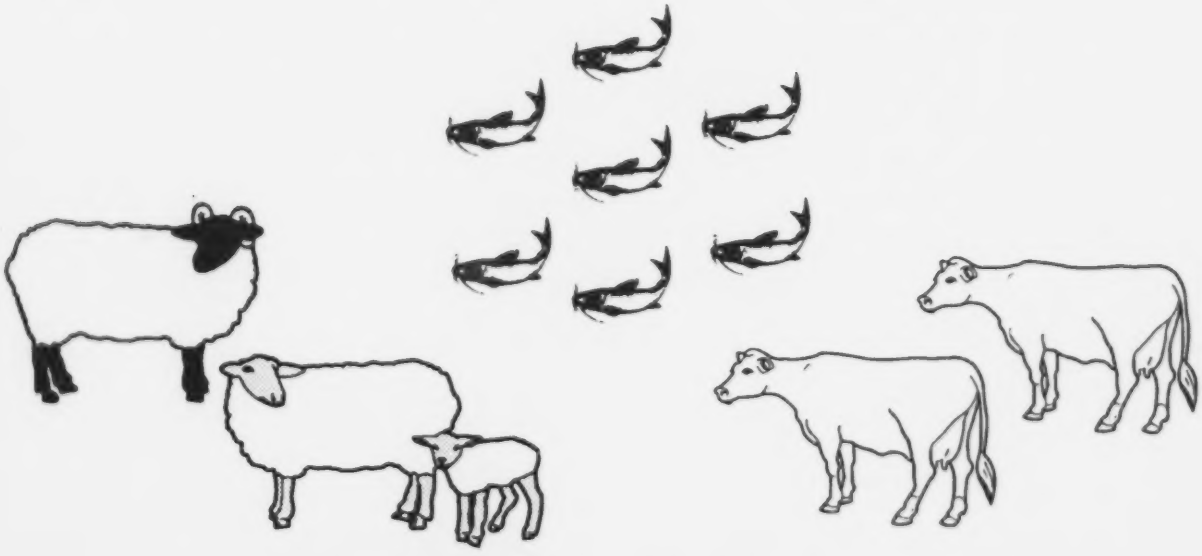
Count the animals in each group. Draw a line from the number to the correct group of animals. Color the pictures.







2 3 4 5 6 7



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EGG-CITING NUMBERS

M 3

SUBJECT: Mathematics

GRADES: K-2

CONCEPT: I

COMMODITY: Poultry

SUGGESTED LEARNER OUTCOME

Worksheet A: Kindergarten. 5. The student will learn to count objects in a set orally, one by one (one to ten).

Worksheet B: Grade One. V. C. The student will learn to sort and order objects according to a given attribute.

Worksheet C: Grades One through Five. II. A. The student will explore and relate manipulatives, pictures and diagrams to mathematical ideas.

LEARNER OBJECTIVE

The student will match the egg to the goose that represents the number on the egg.

LESSON

A. Step-by-Step Instructions

Worksheet A

1. Review counting by ones with your students.
2. Have students match the egg to the goose whose number matches the number of dots on the egg.
3. Have students color the geese after they have completed the matching exercise.

Worksheet B

1. Review counting and number words.
2. Have students match the egg to the goose whose number word matches the number of dots on the egg.
3. Have students color the geese after they have completed the matching exercise.

Worksheet C

1. Review with students the process of counting by tens. Review number words ten through sixty.
2. Have students match the numbered egg to the goose with the correct number word.
3. Have students color the geese after they have completed the matching exercise.

B. Background

Geese usually produce six to twelve eggs one or two times a year. The mother goose will busy herself building her nest for weeks before laying time. The mother goose is very protective during this time of year. She will guard her nest closely and hiss if anything comes near. If the hissing doesn't scare the intruder away, she will get up off the nest and run at the intruder with outstretched wings.

Baby geese are called goslings. Once the goslings have hatched from their eggs, the mother will immediately lead them to water for their protection.

In the U.S., goose eggs are very rarely used in cooking. Goose eggs have a rubbery texture and very little flavor. Most goose eggs are placed in incubators or left with the mother to incubate, so they will hatch into goslings.

Source: Oklahoma Cooperative Exte nsion Service, Animal Science Department.

C. Resources

Books

Duvoisin, Roger, *Petunia*, Dragonfly, 1950.
Flack, Marjorie, *The Story About Ping*, Scholastic, 1961.
Heine, Helme, *The Most Wonderful Egg in the World*, Aladdin, 1983.
Heller, Ruth, *Chickens Aren't the Only Ones*, Grosset & Dunlap, 1981.
Polacco, Patricia, *Just Plain Fancy*, A Bantam Little Rooster Book, 1990.
Potter, Tessa, and Donna Bailey, *Chickens and Eggs*, My World Books, Red Level, Steck-Vaughn, 1990.
San Souci, Robert D., *The Talking Eggs*, Scholastic, 1989.

D. Evaluation

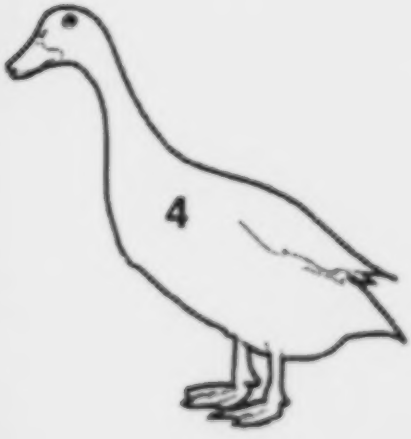
A teacher-made answer key would be best for checking student worksheets.

E. Related Activities

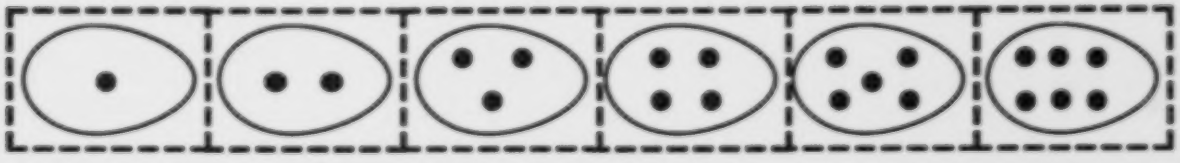
1. Dye eggs in the classroom.
2. Older students can pair up and have an egg toss: Hard-cook eggs and bring them to class. Cut holes in large garbage bags for heads and armholes and have students wear them to help cut down on the mess. Have the class measure the distance of the winning egg toss, or have each team measure the distance of its own egg toss. Create a graph showing the results, and post it in the classroom.
3. Place small objects inside plastic eggs and allow students to count and record the number on an answer sheet.

Name _____

Egg-citing Numbers A



Cut out the boxes. Paste the egg next to the goose with the correct numeral.



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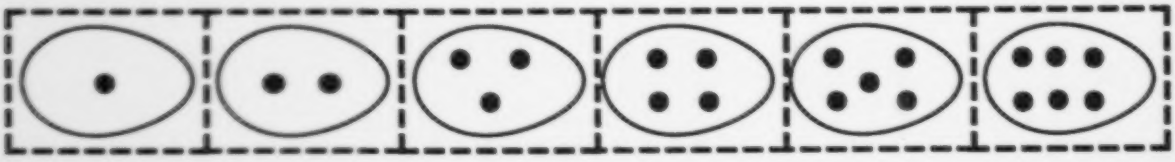
Name _____

Egg-citing Numbers B

Cut out the boxes. Paste the egg next to the goose with the correct number word.



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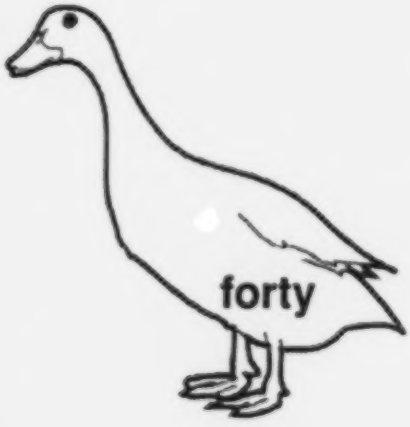
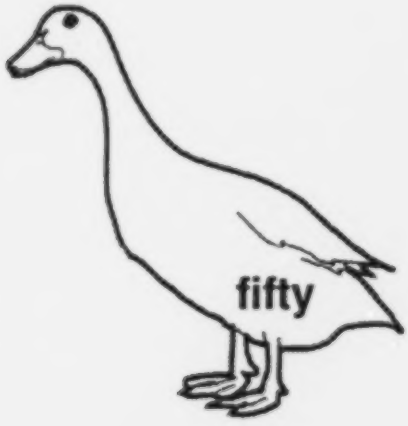
Name _____

Egg-citing Numbers C





Cut out the boxes. Paste the egg next to the goose with the correct number word.

20	50	10	30	60	40

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PUMPKIN FACES

M 4

SUBJECT: Mathematics

GRADES: K-2

CONCEPT: III

COMMODITY: Horticulture

LEARNER OUTCOME

Kindergarten, Nonmetric Geometry: 1. The student will identify and name the four basic shapes. 2. The student will draw the basic shapes.

LEARNER OBJECTIVE

The student will create a jack-o-lantern face, using basic shapes.

LESSON

A. Step-by-Step Instructions

1. Review basic shapes (circle, triangle, square, rectangle, half-circle, oval).
2. Show students how to cut basic shapes from one- by four-inch strips of black construction paper.
3. Hand out the student worksheets. Have students create pumpkin faces by gluing the shapes they cut from the construction paper onto the pumpkin pattern on the student worksheet. The faces can be scary, happy, sad, etc.

D. Background

The pumpkin is one of only a few foods we still eat today that is native to North America. The Pilgrims and other early New England settlers liked to use pumpkins, because they would keep for several months if stored in a cool, dry place. Pumpkins were a main part of the early settlers daily diet.

It wasn't until much later that people started carving faces on pumpkins. The custom started as a way of scaring off the goblins that roamed freely on Halloween.

October is the biggest pumpkin month. The pumpkin is a vegetable, but most pumpkins grown today are sold for decorating and carving. Pumpkins are cut from the vine and not picked. This is to make sure that a small portion of the vine is still connected to the top of the pumpkin. If the vine is completely removed the pumpkin will spoil much sooner.

Pumpkins are grown in many Oklahoma gardens and on Oklahoma vegetable farms. Pumpkins are sold at farmers' markets and from roadside stands. When buying a pumpkin, choose one with a piece of dried vine still attached to the top.

Source: OSU Cooperative Extension Service, 4-H Literature

C. Resources

Books

Delton, Judy, *Peewee Scouts, #5: Grumpy Pumpkin*, Dell Young Yearling, 1989.

Kroll, Steven, *The Biggest Pumpkin Ever*, Scholastic, 1984.

Peterson, John, *Tom Little's The Great Halloween Scare*, Scholastic, 1975.

D. Evaluation

Were the students familiar with the basic shapes? Did the activity re-enforce their knowledge of shapes?

E. Related Activities

1. Have students tell short stories about their pumpkins and record them on

tape. Older students can write their stories.
2. Have students complete these pumpkin phrases:
   "as scary as . . ."
   "as orange as . . ."
   "as round as . . ."
   "as dark as . . ."
   "as haunted as . . ."
   "as bright as . . ."
3. Use these poems by Lois Lenski for writing lessons.

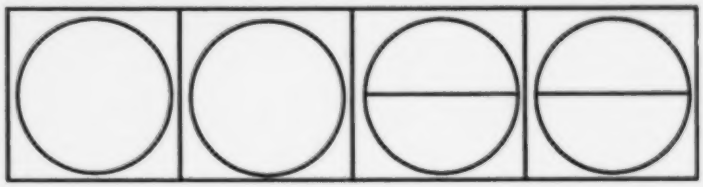
Great big golden pumpkins
Ripen in the fall.
From the kitchen garden
We will bring them all.

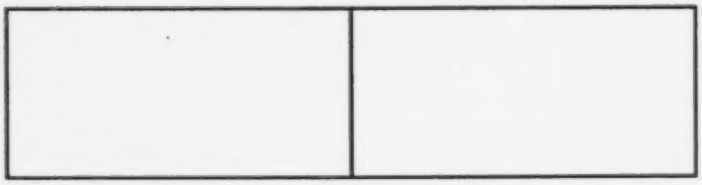
Oh, see?
What fun it will be--
Make a pumpkin face
With nose and eyes
Mouth wide open
In surprise!

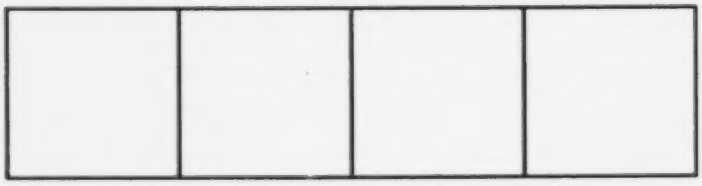
Oooh, oooh!
It's scary too,
When the light
Shines out at night.

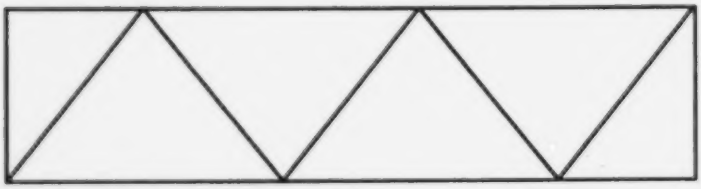
4. Read "The Legend of Sleepy Hollow." Discuss the story line and the role of the pumpkin in the story.
5. Have students visit a local farmers' market or roadside stand in mid-October to see the pumpkins on display.

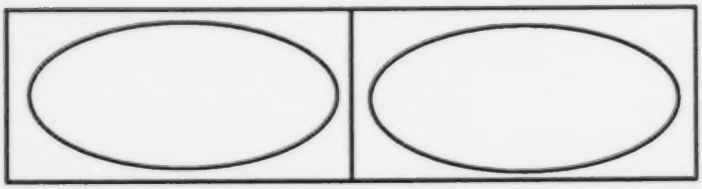
Pumpkin Faces











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Name _____

Pumpkin Faces

Cut shapes from construction paper and make a face on this pumpkin.

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REAL MILK FOR REAL PEOPLE M 5

SUBJECT: Mathematics **GRADES:** K-2

CONCEPT: V **COMMODITY:** Dairy

LEARNER OUTCOME

Grade One: VI. C. The students will read and write numerals.

LEARNER OBJECTIVE

To help students understand that the "Real Seal" on a product indicates that product is made from milk and not from substitute products.

LESSON

A. Step-by-Step Instructions

1. Hand out student worksheets.
2. Explain what the "Real Seal" means, using the background information.
3. Let students color the picture and count the "Real Seals."

B. Background

Dairy farmers in the U.S. developed the "Real Seal" so their customers would have a way of knowing the products they buy are made from real milk. One common substitute for a milk product is margarine, a substitute for butter. Margarine is made from vegetable or animal products. Most other substitutes for milk products are also made from vegetable or animal products.

Any dairy food processor who wishes to have his products identified as being made from real milk can sign a contract to use the "Real Seal."

Source: OSU Cooperative Extension Service, Animal Science Department.

C. Resources

Books

Garrick, Donald, *Milk*, Green Willow, 1985.
McFarland, Cynthia, *Cows in the Parlor*, Atheneum, 1990.
Poskanzer, Susan Cornell, *What's It Like to be a Dairy Farmer?* Troll Associates, 1989.
Potter, Tessa, *Cows*, Steck-Vaughn Library, 1990.
Ziegler, Sandra, *A Visit to the Dairy Farm*, Children's Press, 1987.

Additional Resources

"Happiness is a Cow," Shirley Domeier, Rt. 2, Box 77, New Ulm, MN 56073 (coloring book, 50 cents each, with a minimum order of 20).

D. Evaluation

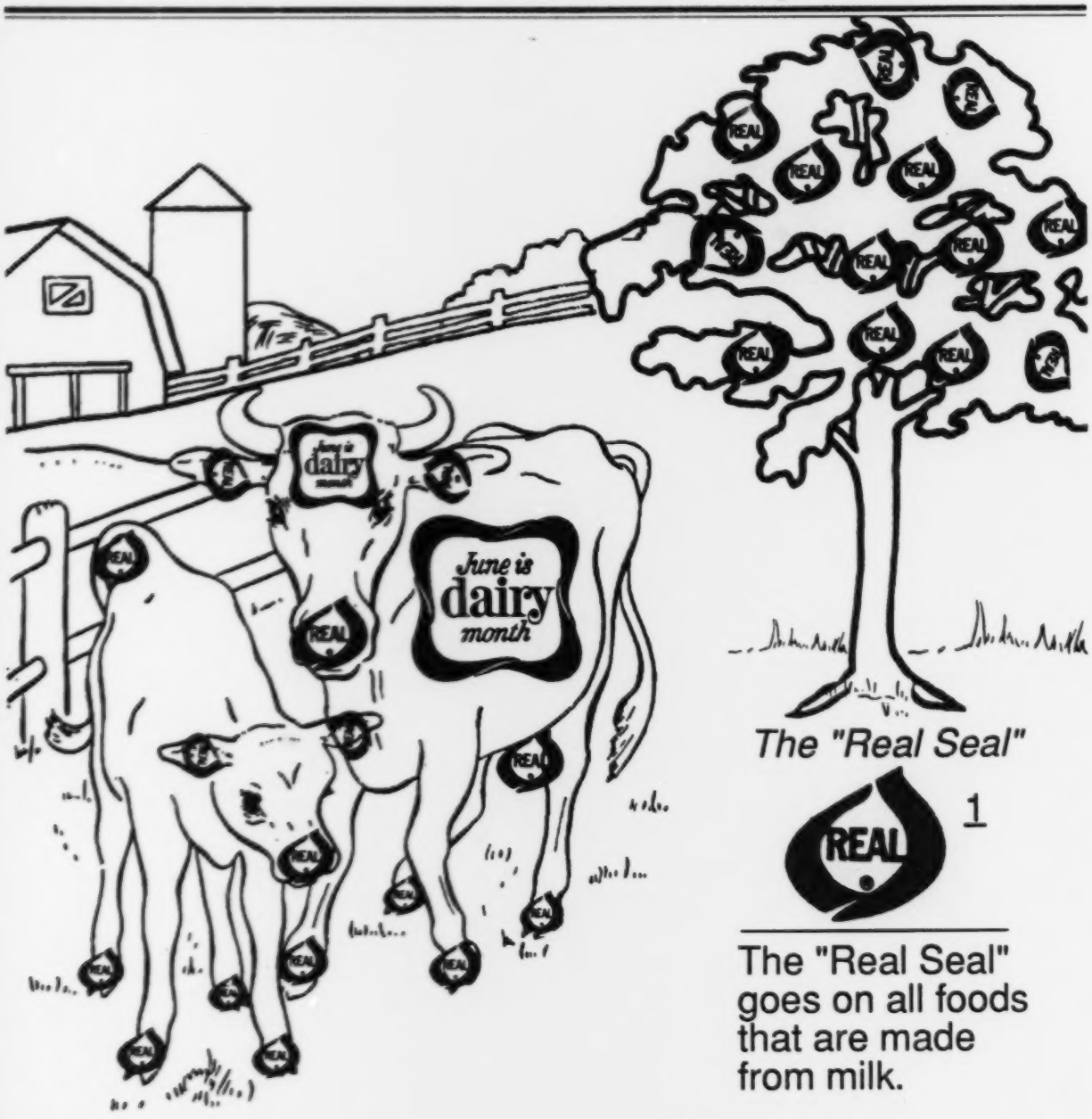
Check your count of "Real Seals" in the picture. There should be 30, including the large seal under the tree. Your students should be able to explain what the "Real Seal" means.

E. Related Activities

1. Bring a carton from the dairy section of the supermarket that has a "Real Seal" on it.
2. Have students look for products at home that have a "Real Seal." Have them make a list to share with classmates.

Name_____

Real Milk for Real People



The "Real Seal"

1

The "Real Seal" goes on all foods that are made from milk.

How many "Real Seals" are there on this page?_____.

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THE RIGHT SIZE

M 6

SUBJECT: Mathematics

GRADES: K-2

CONCEPT: II

COMMODITY: Forestry

LEARNER OUTCOME

Grade One: IX. A. The student will learn to make and use estimates of measurement.

LEARNER OBJECTIVE

The student will learn to comparing different objects by size.

LESSON

A. Step-by-Step Instructions

1. Hand out student worksheets.
2. Discuss the types of trees found in Oklahoma. Go outdoors and identify the types of trees in your area.

B. Background

*Oklahoma has a giant forestry crop. **Forestry** means taking care of forest land so the trees can be used to make wood products. Lumber, for making houses, is a wood product. So is furniture and even toothpicks. Before it was settled, there were about 19 million acres of forest land in Oklahoma. Now there are about 10 million acres. About half of that has hardwood that can be made into wood products. This is called **timberland**.*

Forestry doesn't mean just cutting down all the trees. Foresters have to keep planting new trees all the time. That way they can use the wood to make things we need and still keep the forest growing for us and all the birds and animals to enjoy.

Source: OSU Cooperative Extension Service, Forestry Dept.

C. Resources

Books

Brandt, Keith, *Discovering Trees,* Troll Associates, 1982.
Frank, Josette (ed.), *Snow Toward Evening,* Dial Books, 1990.
Pellowski, Michael J., *What It's Like to be a Forest Ranger,* Troll Associates, 1989.
Udry, Janice May, *A Tree is Nice,* Harper & Row, 1956.

Additional Resources

"Forest Trees of Oklahoma, How to Know Them," Publication No. 1, revised edition, No. 13, Oklahoma Forestry Division/State Department of Agriculture.

D. Evaluation

Did students place an "X" on the second tree and circle the first tree? Did they draw lines between the logs that are the same length?

E. Related Activities

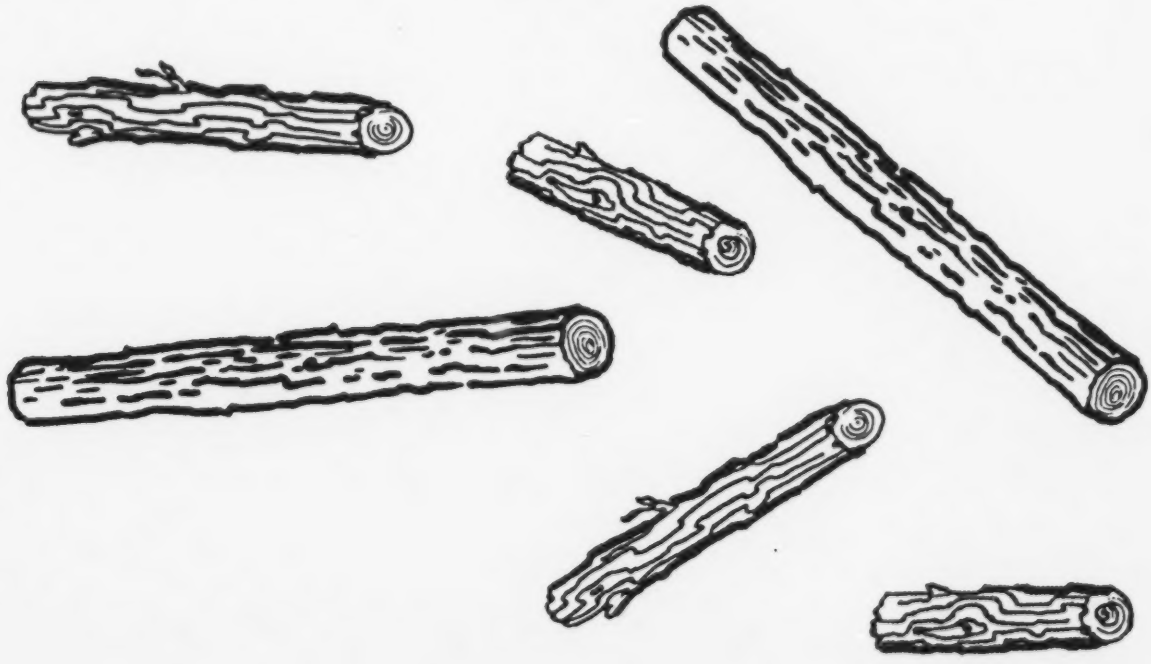
1. Compare the lengths of various agriculture-related objects--hay, straw, grass, tree needles, leaves, etc.
2. Have everyone in the class bring a stick to school. Arrange the sticks, according to size, from the smallest to the largest.
3. Have older students measure in inches and centimeters the lengths of some sticks that have been brought in to share.
4. Make leaf rubbings. Collect large leaves, and place them under white typing paper. Tear off the wrappers on some crayons. Rub the crayons over the white paper with the leaves underneath.

Name _____

The Right Size

Put an X on the tallest tree. Circle the shortest tree.

Draw lines to connect the logs that are the same length.



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FIVE PLUMP PIGS

M 7

SUBJECTS: Mathematics

GRADE: K

CONCEPT: I

COMMODITY: Swine

LEARNER OUTCOME

Kindergarten: Sets and Numbers, 5. The student will learn to count objects in a set orally, one by one (one to ten). 11. The student will learn to write numerals one through ten.

LEARNER OBJECTIVE

The student will match a given number to the appropriate group of objects.

LESSON

A. Step-by-Step Instructions

1. Review counting to five.
2. Hand out and explain the student worksheet.
3. Have the students trace over each dotted numeral. Write the number word on the dotted line. Then draw a line matching the number word to the correct set.

B. Background

Pigs like to eat many different things. They will eat corn or wheat, or even leftovers from the dinner table. Many years ago, farmers treated them almost like garbage disposals. Today farmers are more careful about what they feed their pigs. They try to feed them well-balanced diets. That way farmers can make sure the pork chops, ham and bacon that we eat is healthy.

Once the pigs get bigger they are called hogs. A male pig is called a boar. A female pig is called a sow.

Source: OSU Cooperative Extension Service, Animal Science Dept.

C. Resources

Books

Crozat, Francois, *I Am a Little Pig,* Barron's, 1991.
Jeschke, Susan, *Perfect the Pig,* Scholastic, 1980.
Kitchen, Bert, *Pig in a Barrow,* Dial Books for Young Readers, 1991.
Lobel, Arnold, *Small Pig,* Harper & Row, 1969.
Overbeck, Cynthia, *Curly the Piglet,* Carolrhoda, 1976.

D. Evaluation

Were the numerals traced neatly? Did the student follow directions and draw lines from the number words to the correct sets of pigs?

E. Related Activities

1. Have students view the movie, *Charlotte's Webb,* by E.B. White. Watch the movie in short segments every day for three days. Then have class discussions after each viewing.
2. Designate a "Pink Pig Day." Ask students to wear pink or red to school. Bring sausage or bacon for students to sample. Have students bring toy pigs or pictures of pigs. Read a pig book.
3. Have students make pig masks. You will need to cut out the eyes and attach elastic for the head bands, but the students can color them and cut them out.

Name _____

Five Plump Pigs

Write the number word on the line. Draw a line from the number word to the correct set.

1

one

2

two

3

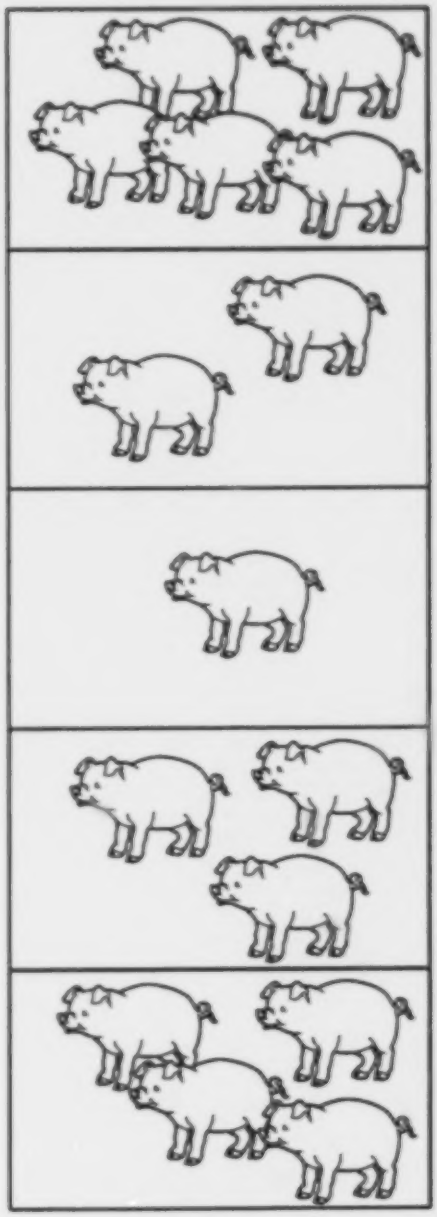
three

4

four

5

five



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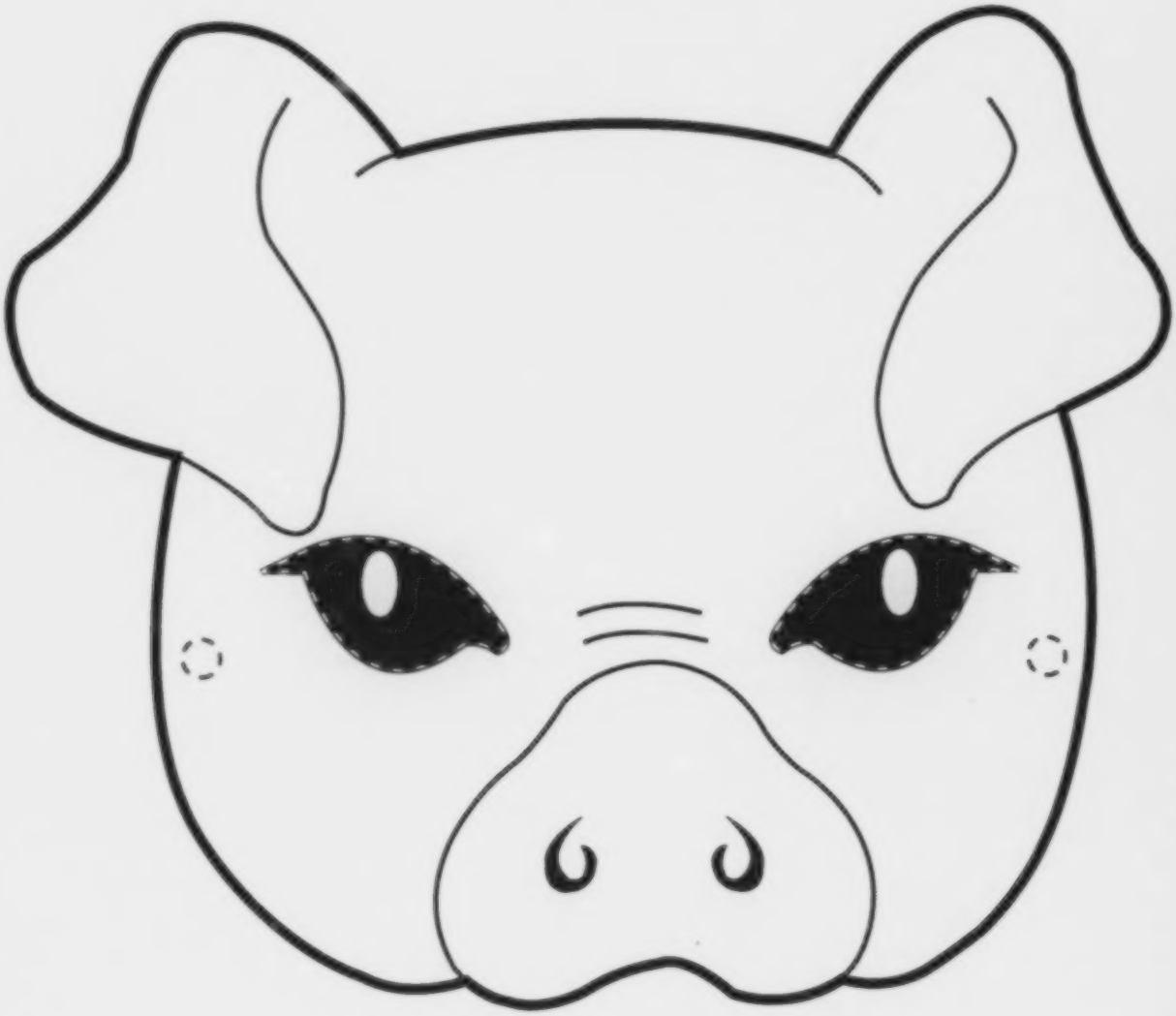
Name _____

Five Plump Pigs

Color the pig mask. Cut out around the head. Cut out the eyes. Punch holes, and use string or elastic to hold the mask on your head.



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COUNT ME IN

M 8

SUBJECT: Mathematics

GRADES: K-1

CONCEPT: I

COMMODITY: Miscellaneous

LEARNER OUTCOME

Kindergarten: Sets and Numbers 5. The student will learn to count objects in a set, orally, one by one (1-10).

LEARNER OBJECTIVE

Students will learn to count farm-related objects, and record the numbers in the appropriate blanks.

LESSON

A. Step-by-Step Instructions

1. Reintroduce counting to your class, and have students practice counting objects, as a class.
2. Hand out student worksheets, and discuss the farm-related pictures with students.
3. Instruct students to count the objects on the student worksheets and write the appropriate numbers in the blank spaces provided.

B. Background

All of the objects pictured on your student worksheets can be found on an Oklahoma farm or are made from things produced on an Oklahoma farm.

C. Resources

Books

Cousins, Lucy, *Farm Animals*, Tambourine, 1991.
Gibbons, Gail, *Farming*, Holiday House, 1988.
Lesch, Christine, *A Farmyard Morning*, Gryphon House, 1990.
Paris, Pat, *Old McDonald Had a Farm*, Barron's, 1991.
Van Allsburg, Chris, *Two Bad Ants*, Houghton-Mifflin, 1988.

D. Evaluation

Correct answers for ***Worksheet A:*** 1. two trees; 2. three shoes; 3. six bugs; 4. five tractors; 5. six vegetables; 6. four trucks.
Correct answers for ***Worksheet B:*** 1. one barn; 2. two hairbrushes; 3. seven pennies; 4. four ducklings; 5. six belts; 6. three ice cream cones.

E. Related Activities

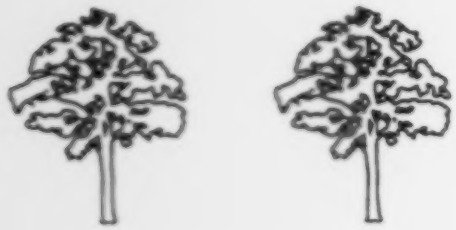
1. Set up a counting center. Arrange like objects in groups, and encircle them yarn to form sets. Provide answer sheets on which students may record their findings. Provide other objects so students can make their own sets. Then have students solve problems created by their classmates.

Name _____

Count Me In A

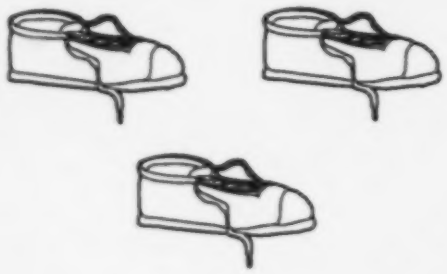
Count and write the number.

1.



_____trees

2.

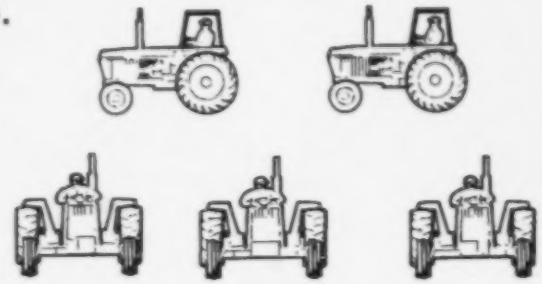


_____shoes

3.

_____bugs

4.

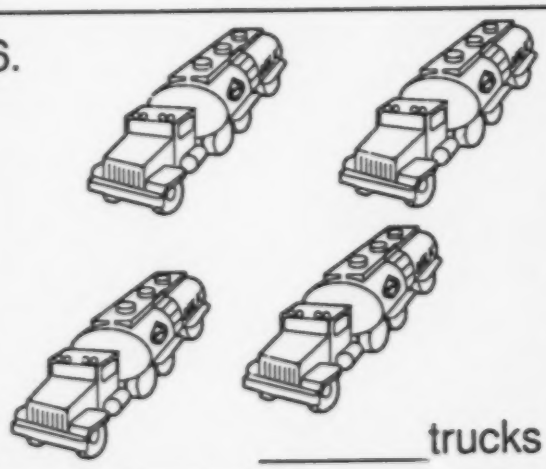


_____tractors

5.

_____vegetables

6.



_____trucks

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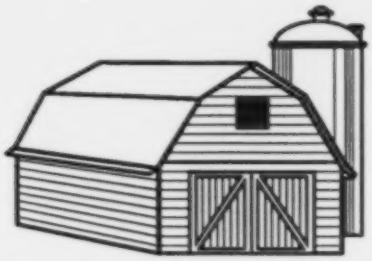
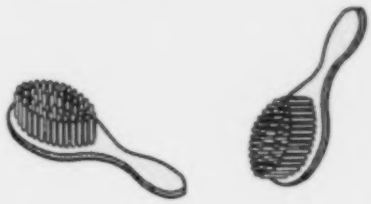
Name _____

Count Me In B

Count and write the number.

1. 

_____barn

2. 

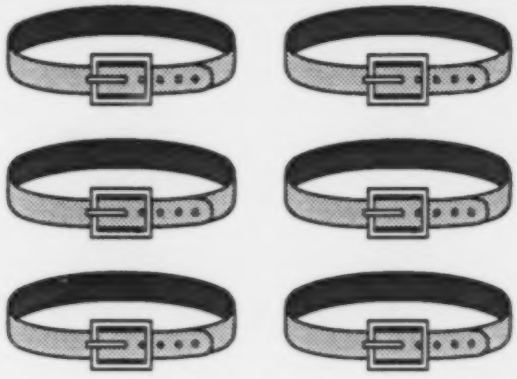
_____brushes

3.

_____pennies

4.

_____ducklings

5. 

_____belts

6.

_____ice cream cones

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COUNT THE COWS

M 9

SUBJECT: Mathematics

GRADES: K-1

CONCEPT: II

COMMODITY: Dairy

LEARNER OUTCOME:
Grade One: VI. A. Students will learn to compare sets by size and quantity.

LEARNER OBJECTIVE
The student will solve simple problems expressed in words and pictures.

LESSON

A. Step-by-Step Instructions

1. Hand out pre-folded student worksheets. For the first part of the activity, the student should only see the top half of the worksheet. Read background information to them.
2. Ask students how many calves there will be next year if each cow has one calf. Then have students unfold the worksheets and look at the bottom. Have students count the cows and the new baby calves, then write the correct numbers in the blanks.
3. Introduce the vocabulary words "herd" and "double."

B. Background

Farmers all over Oklahoma and the United States raise beef and dairy cattle. Beef cattle produce meat, and dairy cattle produce milk. Each cow produces one calf, or offspring, each year. Sometimes a cow will have twins, but that doesn't happen very often. In one year, a cow herd should double in size. Sometimes the herd doesn't grow quite that much, though. Some of the cows may die during the year. Sometimes a calf will not be born healthy and it will die.

It takes 283 days for a calf to be born. Calves are born year-round to provide the people of Oklahoma with fresh milk and meat. Most farmers and ranchers like for their cow herds to give birth in the spring or fall. Then the young calves do not have to struggle in Oklahoma's harsh winters.

A herd is a group of several large animals that stay together.

Source: *Beef Cattle Handbook,* OSU Cooperative Extension Service

C. Resources

Books

Grossman, Bill, *Donna O'Neeshuck Was Chased by Some Cows,* Harper Trophy, 1988.
Kindersley, Dorling, *Farm Animals,* Aladdin, 1991.
McFarland, Cynthia, *Cows in the Parlor,* Antheneum, 1990.

Additional Resources

Oklahoma Beef Industry Council, 5101 N. Classen, Ste. 210, Oklahoma City, OK 73118, (405)840-3777.

D. Evaluation

The number of cows should be five, and the number of cows and calves combined should be ten.

E. Related Activities

Make a farm visit to see cows and their calves.

Name _____

Count the Cows

Cows have one calf each year. This is how a herd gets bigger.

How many cows are in this picture? _____

How many animals will there be next year? _____

fold first

Count just the cows. How many? _____

Count just the calves. How many? _____

How many are in the herd now? _____

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THE COTTON SYMBOL

M 10

SUBJECT: Mathematics

GRADES: K-1

CONCEPT: II

COMMODITY: Cotton

LEARNER OUTCOME

Grade One: VI. D. The student will model and count objects by one, twos, fives and tens.

LEARNER OBJECTIVE

The student will be introduced to the Cotton Grower's Association symbol by counting them in a hidden picture.

LESSON

A. Step-by-Step Instructions

1. Practice counting groups of objects orally.
2. Draw on the board or photocopy the cotton symbol. Share the background information with students.
3. Hand out student worksheets. Have students count the cotton symbols and write the number on the line. Then have students choose a crayon and color all the cotton symbols.

B. Background

Cotton is one of the oldest plants used for making clothing. Scientists have found pieces of cotton cloth that are over 700 years old.

Cotton is used for more than making fabric for clothing, sheets and towels. Some plastics are also made from cotton. The cotton seed is also useful. It is used for making oil and as feed for livestock.

Cotton grows in warm climates. The southern part of the United States is the main growing region for this country. Cotton County in southwest Oklahoma got its name from the cotton crops grown there.

The cotton symbol is a registered symbol of the National Cotton Council of America. It can only be placed on products made from 100 percent cotton.

Source: OSU Cooperative Extension Service, Agronomy Department

C. Resources

Books

Amor, Jennifer, *Flavor Quilts for Kids to Make,* American Quilter's Society, 1991.

Additional Resources

American Quilter's Society, P.O. Box 3290, Paducah, KY, 42002-3290.

National Cotton Council of America, P.O. Box 12285, Memphis, TN 38182, (901)274-9030.

D. Evaluation

The student should have counted and colored 12 cotton symbols.

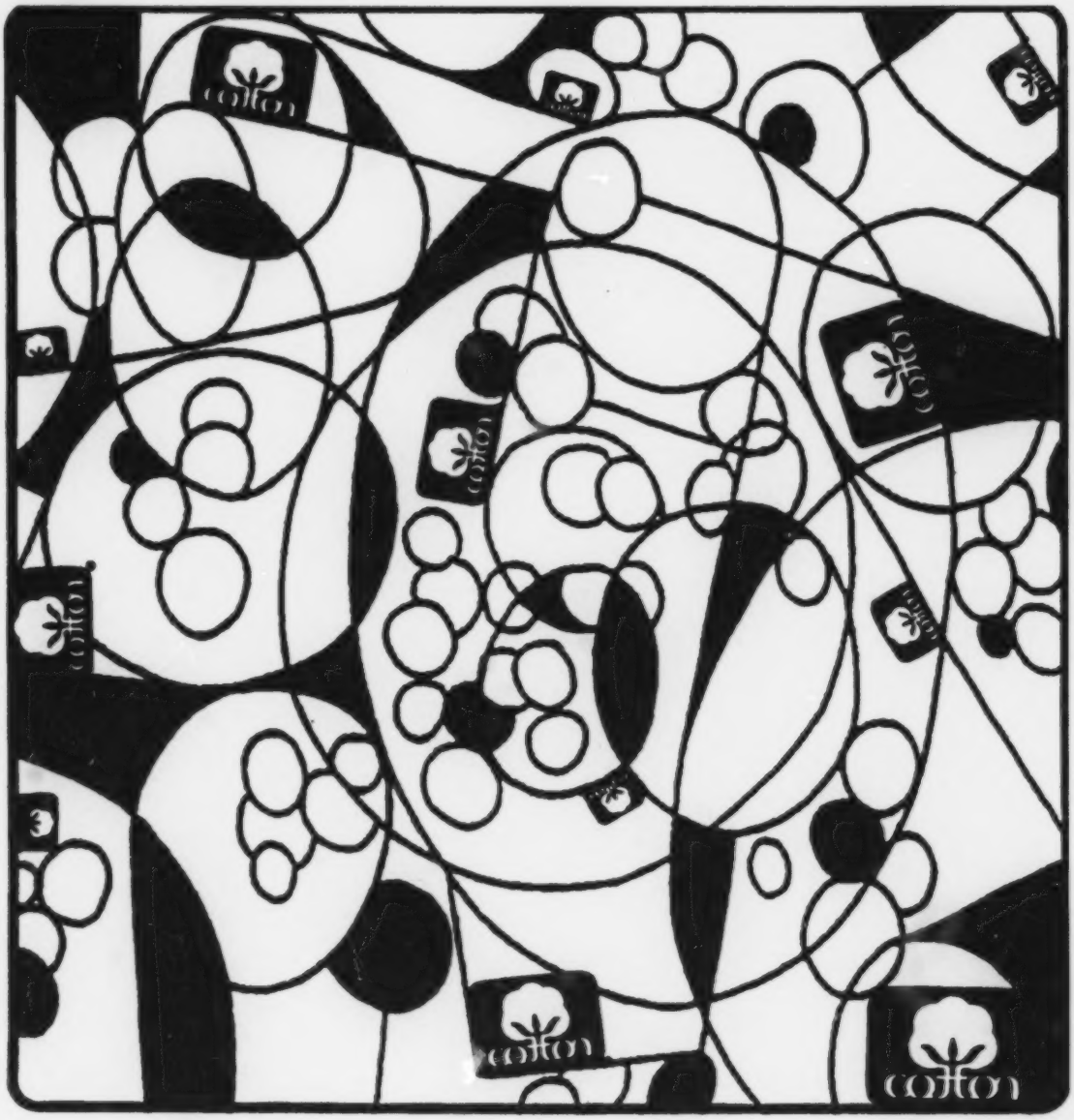
E. Related Activities

1. Set up a display of items that have the cotton symbol on a label (towels, pillow cases, shirts).
2. Contact your county Extension agent to find a cotton producer willing to give an informational talk.
3. Display cotton bolls in a "touch and feel" learning center.

Name _____

The Cotton Symbol

How many cotton symbols can you find in this picture. Choose a crayon color, and color all the cotton symbols you counted.



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DIPPING INTO DAIRY

M 11

SUBJECT: Mathematics

GRADE: 1

CONCEPT: V

COMMODITY: Dairy

LEARNER OUTCOME

Grade One. VII. B. The student will learn to demonstrate his or her understanding of addition and subtraction by joining, separating and comparing sets of objects.

LEARNER OBJECTIVE

To practice basic addition and subtraction problems, with the aid of dairy products.

ACTIVITY

A. Step-by-Step Instructions

1. Draw groups of milk cartons on the board for students to count and add. Shade in some cartons to represent chocolate milk, and have students subtract the shaded cartons from the unshaded cartons. Write out numeral sentences, and say the answers with your students.
2. Hand out student worksheets.
3. On the backs of the worksheets, have students create their own dairy math problems.
4. Brainstorm the names of dairy products. List them on the board. Have students draw and color the dairy products they have named.

B. Background

What foods that you had to eat in the cafeteria today were made from milk? Did you drink white milk or chocolate milk? Did you have cheese on pizza or a grilled cheese sandwich. Did you eat an ice cream bar for dessert? These are all dairy products. Dairy products are made from milk. Milk is an important part of everyone's diet. It helps build strong bones and teeth. Dairy cows give us milk.

Source: OSU Cooperative Extension Service, Animal Science Dept.

C. Resources

Books

Carrick, Donald, *Milk,* Greenwillow, 1985.

Gibbons, Gail, *The Milk Makers,* Macmillan, 1985.

Gregory, O.B., and Elsie Wrigley, *Milk,* Rourke, 1981.

Greene, Carla, *I Can Be a Dairy Farmer,* Children's Press, 1991.

Maestro, Giulio, and Carolyn Meyer, *Milk, Butter and Cheese: The Story of Dairy Products,* Morrow Junior Books, 1974.

Additional Resources

California Milk Advisory Board, Communications Services, P.O. Box 4680, Modesto, CA 95352 (free dairy lesson plans and posters for grades K-3).

"Happiness is a Cow," Shirley Domeier, Rt. 2, Box 77, New Ulm, MN 56073 (24-page coloring book, 50 cents each, with a minimum order of 20).

"Milking Shorthorns: The Nation's Most Improved Dairy Breed," American Shorthorn Society, P.O. Box 449, Beloit, WI 53511 (four-page brochure, free).

D. Evaluation Methods

Did the student complete the picture problems correctly? Do the students know what animal produces dairy products?

E. Related Activities

1. Bring samples of the dairy products pictured on the student pages and let your students taste them. Discuss what animal produces these products. Ask why our bodies need dairy products.

2. Bring in pictures or packaging to illustrate dairy products.
3. Cut out two cones from brown construction paper. Cut out 10 "dips" of ice cream from different colored construction paper. Have students create math problems by stacking dips above each brown cone. Students will create the problem with the cutouts, then either write them down or give them to you orally.

Name _____

Dipping Into Dairy

A

How many cartons of milk? _____

How many wedges of cheese? _____

How many ice cream bars? _____

How many sticks of butter? _____

Add the dips of ice cream.

_____ + _____ = _____

_____ + _____ = _____

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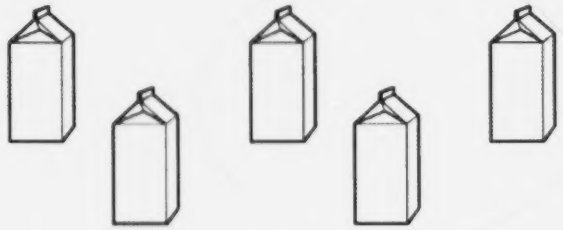
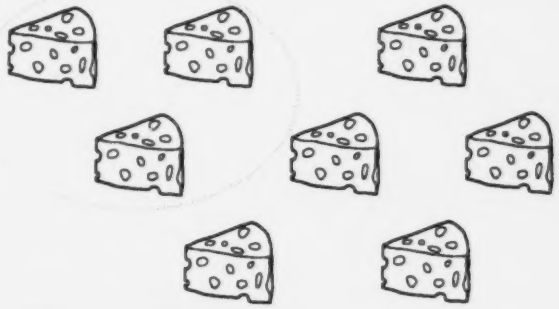
Name _____

Dipping Into Dairy

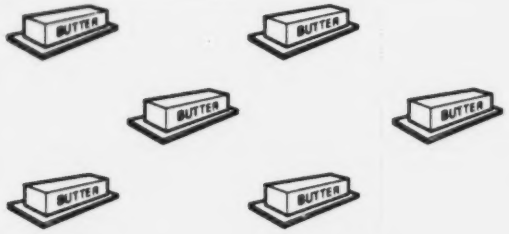
B



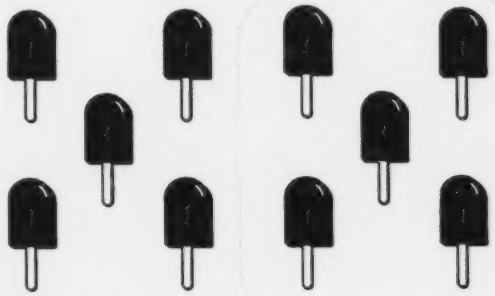
5 - 3 = _____



8 - 3 = _____



6 - 5 = _____



___ - ___ = ___

How many more dips does Sue have than Tom?

Sue - Tom = 4 - 2 = _____

Sue - Tom = ___ - ___ = ___

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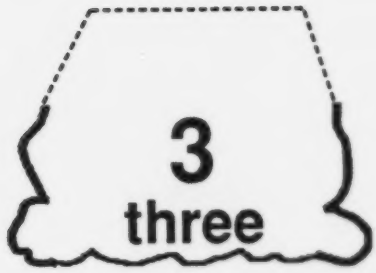
Ag in the Classroom

Name _____

Dipping Into Dairy

C

Stack the dips of ice cream in the correct number order.



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Ag in the Classroom

AG MATH

M 12

SUBJECT: Mathematics

GRADES: 1-2

CONCEPT: I

COMMODITY: Miscellaneous

LEARNER OUTCOME

Grade One: VII. B. The student will learn to demonstrate understanding of addition and subtraction by joining, separating and comparing sets of objects.

LEARNER OBJECTIVE

The student will become familiar with things that are produced or found on an Oklahoma farm while practicing skills involving addition and subtraction.

LESSON

A. Step-by-Step Instructions

1. Review addition and subtraction with your students. Hand out student worksheets.
2. ***Worksheets A and B*** - Have students add the groups of animals in each square, then color the pictures.
3. ***Worksheet C*** - Have students cross out the number of pictures necessary to represent the subtraction problem in each square. Then have them color the animals that were not crossed out.

B. Background

All the items pictured on the student worksheets can be found on farms throughout the state of Oklahoma.

Source: OSU Division of Agricultural Sciences and Natural Resources

C. Resources

Books

Brown, Margaret Wise, *Big Red Barn*, Random House, 1989.
Emberley, Ed, *Ed Emberley's Little Drawing Book of Farms*, Little, Brown, 1980.
Gibbons, Gail, *Farming*, Holiday House, 1988.
Kindersley, Dorling, *Farm Animals*, Aladdin, 1991.
King, P.E., *Down on the Funny Farm*, Random House, 1986.

Additional Resources

"My Family Farm," Illinois Farm Bureau, Field Services Division, 1701 Towanda Ave., Bloomington, IL 61701 (bulletin board kit for grades 1-3, $4.75).

D. Evaluation

Correct answers for the student worksheets are as follows:
Worksheet A - 1. 3; 2. 4; 3. 6; 4. 5.
Worksheet B - 1. 4; 2. 4; 3. 3; 4. 2; 5. 5; 6. 3.
Worksheet C - 1. 2; 2. 3; 3. 3; 4. 3.

E. Related Activities

1. Have students cut out pictures of things that are similar (cakes, people, cars, plants). Then have them group the pictures to create addition and subtraction problems and paste the pictures to a piece of paper. Students should write the problems to the side of the groups. For subtraction problems, have students cross out the number of pictures necessary to represent the problems they have created.

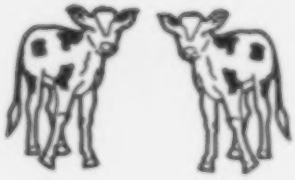
Name _____

Ag Math A

Add and color.

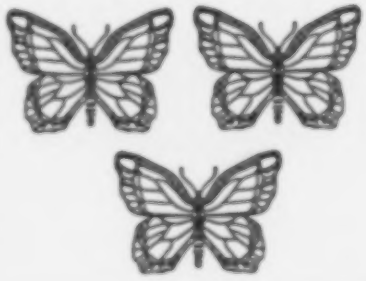
1.

1
+2



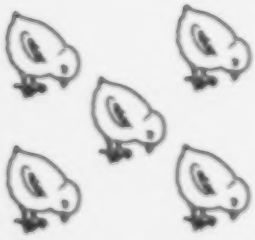
2.

1
+3



3.

1
+5



4.

1
+4

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Name _____

Ag Math B

Add and color.

1.

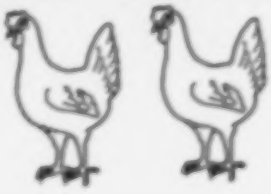
$$\begin{array}{r} 3 \\ +1 \\ \hline \end{array}$$

2.

$$\begin{array}{r} 2 \\ +2 \\ \hline \end{array}$$

3.

$$\begin{array}{r} 2 \\ +1 \\ \hline \end{array}$$

4. 

$$\begin{array}{r} 2 \\ +0 \\ \hline \end{array}$$

5.

$$\begin{array}{r} 3 \\ +2 \\ \hline \end{array}$$

6.

$$\begin{array}{r} 1 \\ 1 \\ +1 \\ \hline \end{array}$$

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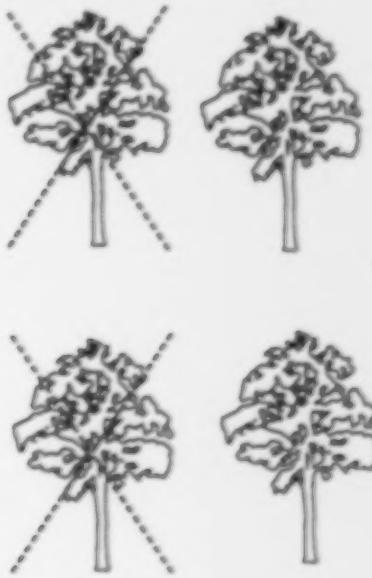
Name _____

Ag Math C

Subtract. Color the pictures that are left.

1.



$$\begin{array}{r} 4 \\ -\ 2 \\ \hline \end{array}$$

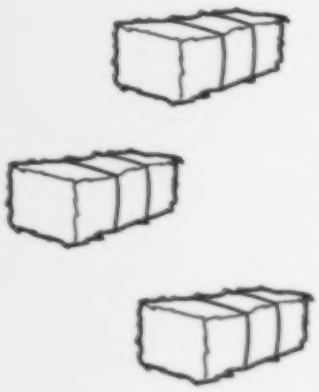
2.

$$\begin{array}{r} 6 \\ -\ 3 \\ \hline \end{array}$$

3.

$$\begin{array}{r} 5 \\ -\ 2 \\ \hline \end{array}$$

4.



$$\begin{array}{r} 3 \\ -\ 0 \\ \hline \end{array}$$

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DOLLARS AND CENTS

M 13

SUBJECT: Mathematics

GRADES: 1-2

CONCEPT: II

COMMODITY: Wheat

LEARNER OUTCOME

Grade Two: IX. D. The student will learn to describe the value of coins.

LEARNER OBJECTIVE

The student will demonstrate recognition of words and will begin to understand definitions of basic economic concepts.

LESSON

A. Step-by-Step Instructions

1. Discuss the words "buy," "sell," "price," "spend," "save."
2. Share the background information with students.
3. Hand out student worksheet.

B. Background

Vocabulary

save *- To keep something (money), instead of spending, wasting or losing it.*
spend *- To use up or pay out something.*
buy *- To get something by trading money for it.*
price *- The amount of money paid for something.*
sell *- To trade something for money.*
expense *- Money that is paid out.*
income *- Money earned in exchange for working or selling goods or property.*

*Farmers **buy** tractors, fuel, fertilizer and seed so they can grow wheat on the farm. These are the farmer's **expenses**. The person who sells these things to the farmer sets the **price**.*

*The farmer may **sell** wheat at a grain elevator. The price of the wheat depends on how much wheat all the farmers have grown and how much bread and other wheat products people are buying. It also depends on how much money people are willing to pay for bread in the grocery store. Another thing that affects the price of wheat is the amount of money foreign countries will pay for it and how much the people who feed it to their animals will pay.*

*The money the farmer earns from selling the wheat is called **income**. The farmer may spend this money on whatever is needed--feed for the livestock or new shoes for the children. Or the farmer may **save** the money in a bank, in case he or she needs to buy something later.*

Source: OSU Cooperative Extension Service, Ag Economics Department

C. Resources

Books

Anno, Mitsumasa, *Anno's Journey*, Philomel, 1978.
Hall, Donald, The *Ox Cart Man*, Viking, 1979.

Additional Resources

"My Very Own Poster for Counting Money," Good Apple Catalog, 1204 Buchanan St., Box 299, Carthage, IL 62321-0299, 1-800-435-7234 (25 for $6.25.)

"Coin Changer," Heartsoft (Apple IIe software for grades K-5. Teaches children how to count and use money.)

D. Evaluation

Students should be able to find the following words in the puzzle--"buy," "sell," "price," "spend," "save," "penny," "nickel," "dime," "quarter," "money." Correct answers for counting money are as follows: 1. 25 cents; 2. six cents; 3. nine cents.

E. Related Activities

1. Using the vocabulary words, talk about opposites (spend/save, buy/sell, income/expense).
2. Have each student bring one empty box or can to school. Tag each item with a price from 5 cents to $1. Give each child the equivalent of $1 in paper coins. Allow children to buy and sell to each other for ten minutes. Instruct the students to buy what they really want or like. When the time is up, check to see who has the most money and who has the largest number of items.

Name _____

Dollars and Cents

Circle these words in the puzzle. Complete the table at the bottom of the page.

	a	s	a	v	e	c	p
	f	p	e	n	n	y	r
	h	e	j	l	m	m	i
	p	n	r	t	l	o	c
	b	d	i	m	e	n	e
	q	u	a	r	t	e	r
	v	y	y	b	a	y	g
	i	n	i	c	k	e	l

buy
price
spend
sell
save

penny
nickel
dime
quarter
money

	Had	Spent	Have left
1.		25¢	_____
2.		6¢	_____
3.		7¢	_____

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EGG MAZE: COUNTING BY TWOS, THREES AND FIVES

SUBJECT: Mathematics

GRADES: 1-2

CONCEPT: I

COMMODITY: Poultry

LEARNER OUTCOME

Grade One: VI. D. The student will learn to model and count objects by ones, twos, fives and tens.

LEARNER OBJECTIVE

The student will successfully count by twos, threes and fives, using eggs and poultry as a point of interest.

LESSON

A. Step-by-Step Instructions

1. Orally review the type of counting you want your students to use on the worksheet (twos, threes or fives).
2. Summarize the background information about chickens.
3. Pass out student worksheets.

B. Background

Most of the eggs we eat come from chickens. Chickens are in the poultry group, along with ducks, geese and turkeys. Farmers raise poultry both for eggs and for meat.

An egg grows and develops, much like a seed. Every animal begins life as an egg cell. When you eat an egg, you are eating a single cell.

Farmers use nests in their hen houses so the hens will lay their eggs in safe, protected places. If there were no nest, the hen would hide her nest so carefully that the farmer might not be able to find the eggs. On large, commercial poultry farms, there are no nests. Instead, hens lay their eggs on the bottom of the cage. From there the eggs roll onto a gathering belt.

Eggs are nutritious, high in protein, inexpensive and can be used many different ways as a cooking ingredient.

Source: OSU Cooperative Extension Service, Animal Science Department

C. Resources

Books

Dabcovich, Lydia, *Mrs. Huggins and Her Hen, Hannah*, E. P. Dutton, 1985.
Demi, *Cuddly Chick*, Putnam, 1988.
Galdone, Paul, *The Little Red Hen*, Seabury, 1973.
Griffin, Margaret, and Deborah Seed, *The Amazing Egg Book*, Addison Wesley, 1991.
Polacco, Patricia, *Just Plain Fancy, A Bantam Little Rooster Book*, 1990.
Watts, Barrie, *Chicken and Egg*, Silver-Burdett, 1987.

Additional Resources

American Egg Board, P.O. Box 838, Park Ridge, IL 60068-0858.

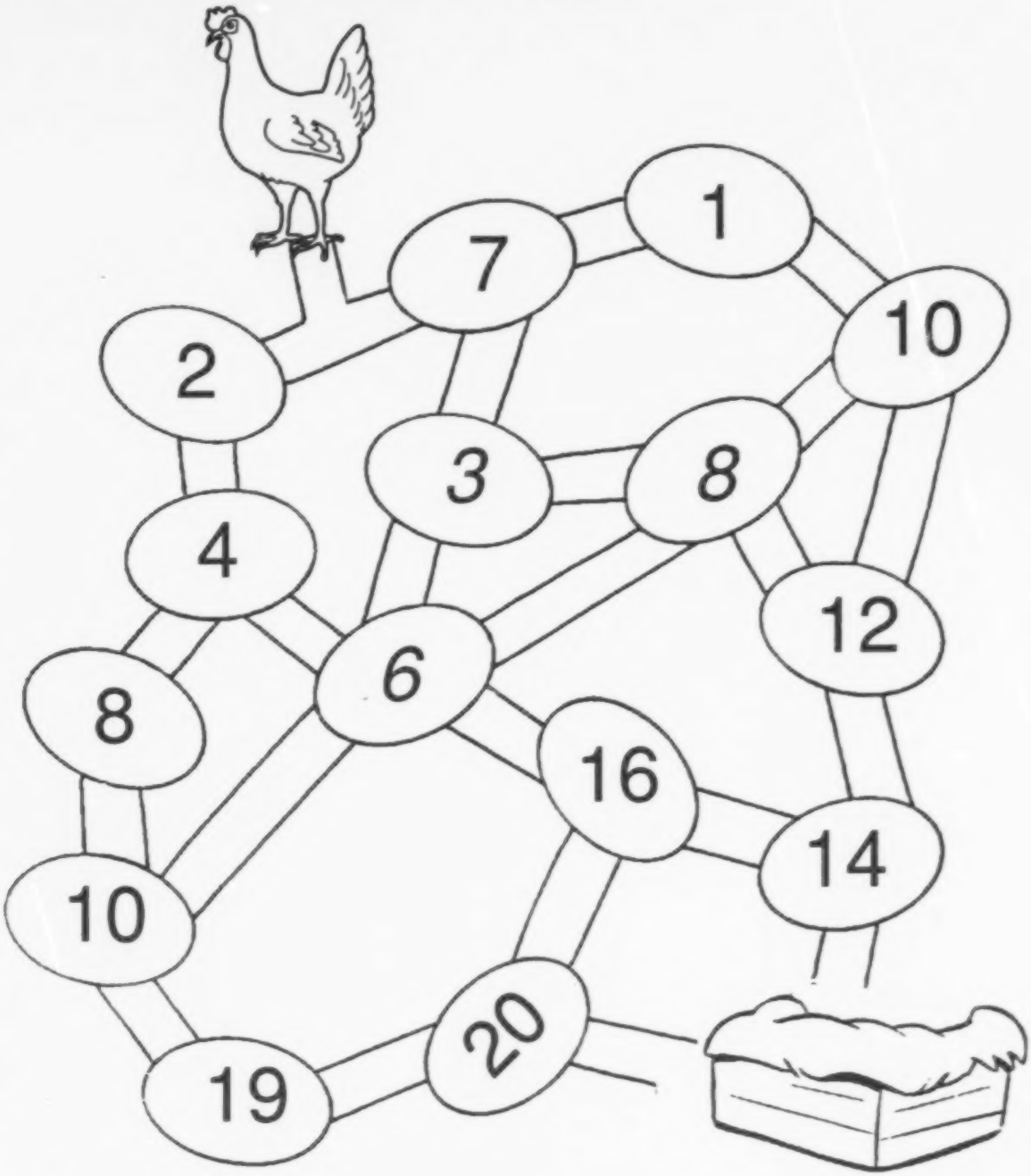
D. Evaluation
A teacher-created check sheet would be best for scoring the student worksheets.

E. Related Activities
1. Introduce the idea of a dozen eggs. Bring in an egg carton and examples of the different sizes of eggs (small, medium, large, extra large). Explain that the larger the eggs, the higher the price.

Name _____

Egg Maze: Counting by Twos

Help the hen get to her nest by finding the path that counts by twos. Draw a line to connect the path.



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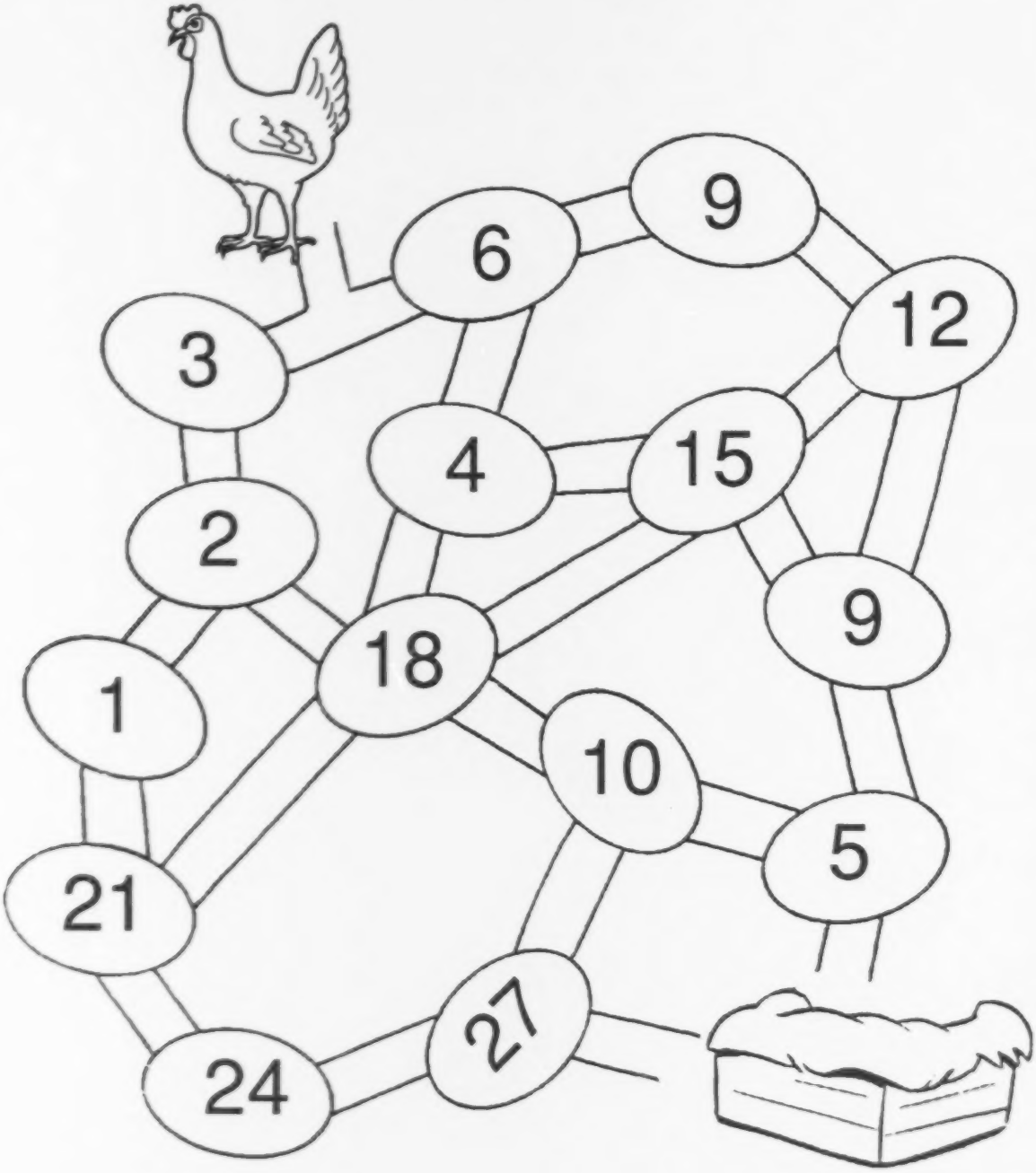
Name _____

Egg Maze: Counting by Threes

Help the hen get to her nest by finding the path that counts by threes. Draw a line to connect the path.



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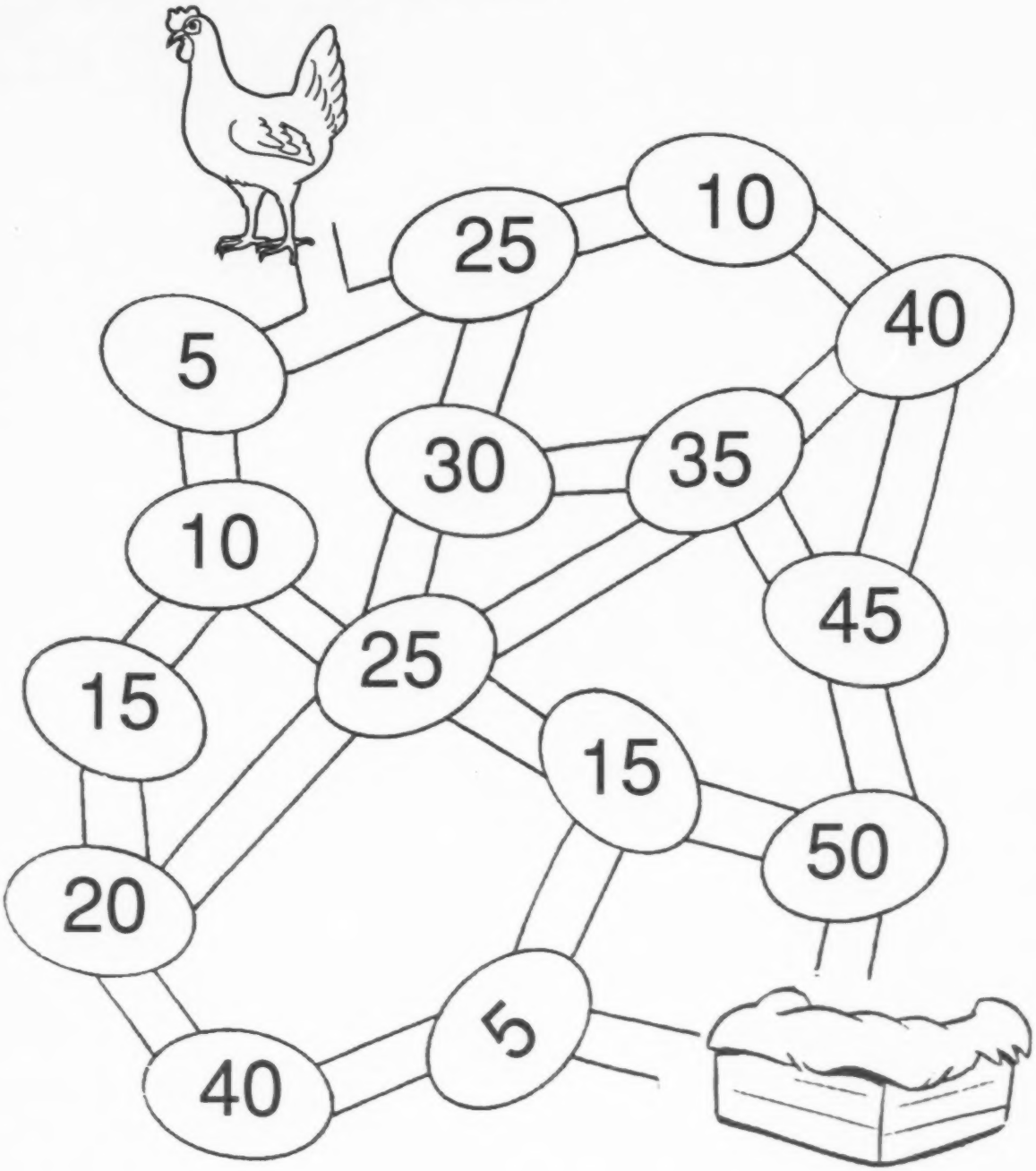
Ag in the Classroom

Name _____

Egg Maze: Counting by Fives

Help the hen get to her nest by finding the path that counts by fives. Draw a line to connect the path.



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GROWING GRAPHS

M 15

SUBJECT: Mathematics

GRADES: 1-2

CONCEPT: I

COMMODITY: Horticulture

LEARNER OUTCOME

Grade One: X. B. The student will formulate and solve problems that involve collecting and analyzing data.

LEARNER OBJECTIVE

The student will observe the slow process of the growth of a plant and document it with a student-designed graph.

LESSON (No student worksheet needed for this lesson.)

A. Step-by-Step Instructions

(Use this activity after plants have appeared above the soil.)

1. Brainstorm with students, using the following questions:
   How do you know your plant is growing?
   Is there a way to keep some kind of record of its growth?
2. Hand out white chart paper, glue and pre-cut strips of construction paper, four inches long and one inch wide.
3. Have students hold paper strips up to their plants, with the bottom of the strip resting on the soil, and cut off the strips at the top of the plant.
4. Instruct students to label their cut-off strips with a number one, then paste the strip to the left side of their charts.
5. Continue this activity every other day for a two-week period. Discuss the growth of plants. Who has the tallest plant? How many plants are about the same size?
6. As the plants grow and change, have students observe the developing leaves. Have students record the number of new leaves by writing the number on the strip of paper used to measure the plant's height.

Note: As the plants grow they may need staking with a dowel or popsicle stick.

B. Background

Bar graphs are an efficient way to organize data. As you watch your plant grow and mark its growth on your graph, you will be able to see that the growth of living things is a slow and steady process.

Source: OSU Cooperative Extension Service, Horticulture Dept.

C. Resources

Books

Ehlert, Lois, *Red Leaf, Yellow Leaf,* Harcourt, Brace, Jovanovich, 1991.
Sabin, Louis, *Plants, Seeds and Flowers,* Troll, 1985.
Walker, Lois, *Get Growing,* John Wiley & Sons, 1991.
Watts, Barrie, *Potato,* Silver-Burdett, 1987.
Watts, Barrie, *Tomato,* Silver-Burdett, 1987.

Additional Resources

Children's Gardens: A Field Guide for Teachers, Parents and Volunteers (a gardening manual, $10, plus $2.50 shipping. Make check payable to LA Harvest.) Common Ground Garden Program, 2615 S. Grand Ave., Suite 400, Los Angeles, CA 90007.

D. Evaluation

Were the students able to gather information from observations of the plant's growth and create the bar graph? Do students have a basic understanding of a bar graph?

E. Related Activities

Have students make *crayon graphs.* Give each student the following materials: six crayons of varying lengths; construction paper; chart paper; scissors; paste. Have students measure the crayons, using paper strips. Show them how to make a chart with the strips that will show the lengths of the crayons. Students should organize the strips from shortest to longest and title the graph at the top of the page.

MATCH THE SHAPES

M 16

SUBJECT: Mathematics

GRADES: 1-2

CONCEPT: III

COMMODITY: Miscellaneous

LEARNER OUTCOME

Grade One: VIII. D. The student will learn to recognize and explore geometry in everyday situations.

LEARNER OBJECTIVE

The student will learn to identify different shapes as they relate to agricultural items.

LESSON

A. Step-by-Step Instructions

1. Hand out activity sheets.
2. Make sure students understand instructions.
3. Discuss what the agriculture-related items in worksheet A are used for, using the background materials.

B. Background

Everything the farmer uses in agriculture has its own special shape or size. Small bales of hay are rectangular. Large bales may be round. The farmer feeds the hay to the cattle during the winter months.

The mineral block is a square shape. It has a salty taste that the animals like. The animals get the minerals they need from the mineral block. Some of the minerals the animals need are calcium and phosporous.

Tractors and other large farm machinery moves very slowly in traffic. The farmer places a sign on the back of the equipment to warn the other drivers. The sign is shaped like a triangle and says "Slow-Moving Traffic."

Source: OSU Division of Agricultural Sciences and Natural Resources

C. Resources

Books

Emberley, Ed, *Little Drawing Book of Farms*, Little, Brown & Co., 1980.
Hajdusiewicz, Babs Bell, *Shape Up, Curvy Snake!* Steppingstone Series, Steck-Vaughn, 1991.
Polacco, Patricia, *Just Plain Fancy*, A Bantam Little Rooster Book, 1990.
Richards, Norman, *Tractors, Plows and Harvesters*, Doubleday & Co., 1978.
Stephen, R. J., *Picture Library Farm Machinery*, Franklin Watts, 1986.
Yenawine, Phillip, *Shapes*, Delacorte, 1991.

D. Evaluation

Were the students able to match the symbols with the correct words?

E. Related Activities

Show students pictures of the farm equipment included in the lesson, or bring examples of the actual items to class. Encyclopedias and farm magazines will have pictures, or get current photos of equipment on the market from a local equipment dealer.

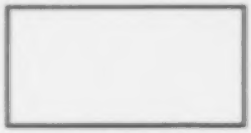
Name _____

Match the Shapes A

square

circle

triangle


rectangle

Match the shape to the word. Then draw a line from the word to the farm shape.

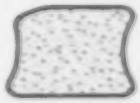
rectangle

"Slow Moving" Sign

square

Bale of Hay

triangle


Mineral Block

circle

Bale of Hay

Draw these shapes.

rectangle	circle	square	triangle

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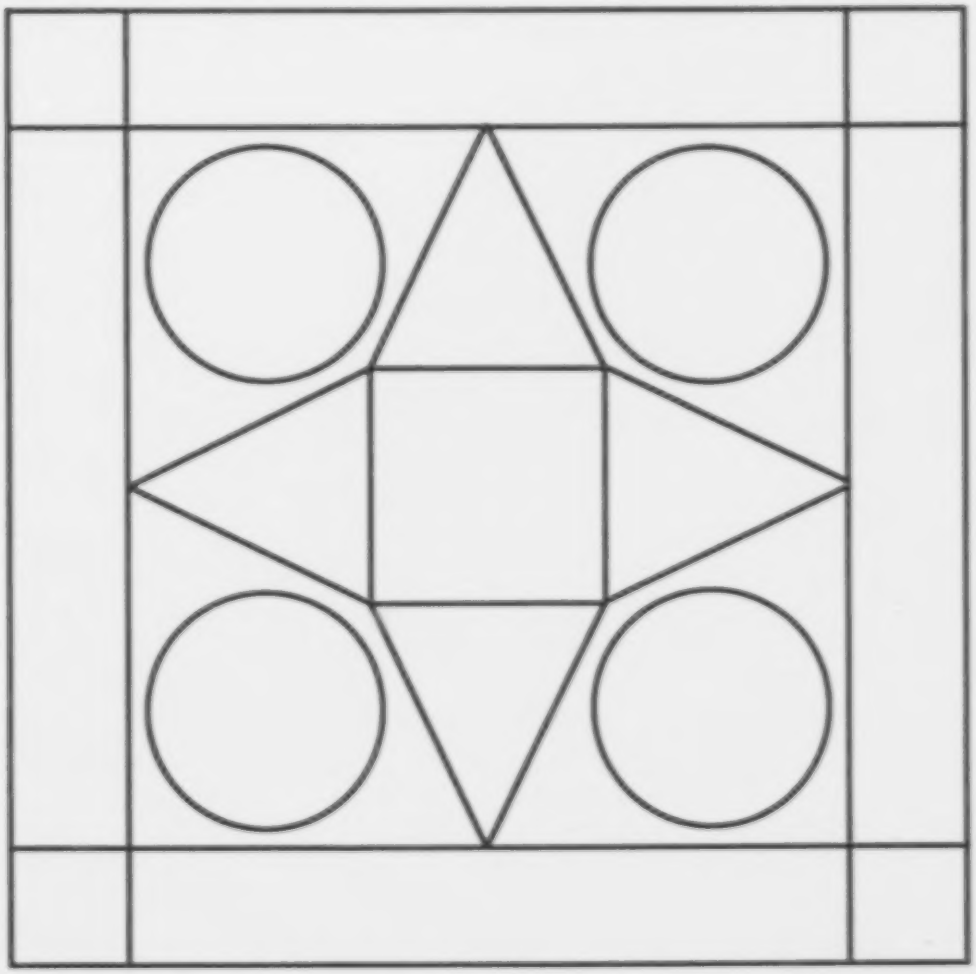
Name _____

Match the Shapes B

This is one square from a hand-sewn quilt. It was made from scraps of material that were different shapes and colors. Find all the triangles and color them all the same color. Then do the same with all the circles, squares and triangles. Write the color you used next to the shape word.

squares_____ rectangles_____

circles_____ triangles_____



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MOO'S WEIGHT

M 17

SUBJECT: Mathematics

GRADES: 1-2

CONCEPT: II

COMMODITY: Beef

LEARNER OUTCOME:

Grade One: IX. C. The student will learn to select and use appropriate units of measurement in problem-solving and everyday situations.

LEARNER OBJECTIVE

The student will learn to use various units of measure.

LESSON

A. Step-by-Step Instructions

1. Bring a scale and have students weigh themselves in class. Have them record their weights.
2. Hand out student worksheets. Have students match the given weights with the appropriate animals.

B. Background

In the cattle industry there are cow/calf systems. Each of these systems includes one bull, one or more cows and one or more calves. Cows are bigger and weigh more than a calf, and the bulls are biggest of all. Of course cattle come in all different sizes and weights, but most cattle raised in the Midwest weigh about the same as those shown on your worksheet.

OSU Cooperative Extension Service, Animal Science Department

C. Resources

Books

Brown, Margaret Wise, *Baby Animals*, Random House, 1989.
Cousins, Lucy, *Farm Animals*, Tambourine, 1991.
Grossman, Bill, *Donna O'Neeshuck Was Chased by Some Cows*, Harper Trophy, 1988.
Kaizuki, Kiyonori, *A Calf is Born*, Orchard, 1990.
McFarland, Cynthia, *Cows in the Parlor*, Atheneum, 1990.

Additional Resources

"Our Friend Herfy," Nebraska Hereford Auxiliary, c/o Meneda Phifer, Rt. 1, Mason City, NE 63355 (32-page storybook for preschool and K-3, $4, plus 90 cents for postage and handling).

D. Evaluation

Were the students able to match the weights to the appropriate animals?

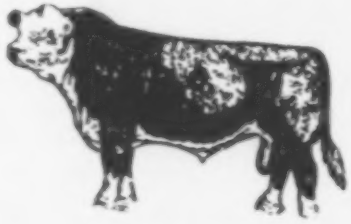
E. Related Activities

1. Take students on a field trip where they can see the animals discussed.
2. Using a calculator, figure out how many students it takes to weigh as much as a calf. How many for a cow? How many for a bull? Do you need to include another class?
3. Make a life-size picture graph to hang in the hallway, showing how many students it would take to equal the weight of a cow. Trace several students' bodies, and have each student figure equal 100 pounds. Trace the body of a male teacher or administrator and have that figure equal 200 pounds. Make a cutout of a cow. Place an equal sign between the appropriate number of human figures and the cow. Choose students to explain the project to other classes and school personnel.

Name _____

Moo's Weight

Match the picture to the weight.



1,000 pounds 1,500 pounds 100 pounds 50 pounds

List the animals, from the lightest to the heaviest.

1. _____

2. _____

3. _____

4. _____

Fill in the graph to show each animal's weight. Use a crayon and color.

child																
calf																
cow																
bull																
	100	200	300	400	500	600	700	800	900	1000	1200	1300	1400	1500	1600	1700

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PEANUT PATCH

M 18

SUBJECT: Mathematics

GRADES: 1-2

CONCEPT: I

COMMODITY: Peanuts

LEARNER OUTCOME

Grades One through Five: II. C. The student will represent, discuss, write and read mathematical ideas and concepts.

LEARNER OBJECTIVE

The student will be able to match the signs "<," ">," or "=" to sets of objects in a mathematical form.

LESSON

A. Step-by-Step Instructions

1. Review the concepts "greater than," "less than" and "equal to."
2. Review the symbols "<," ">," "=."
3. Hand out the student worksheet. Instruct students to count the number of peanuts in each set and determine if one is greater than, less than or equal to the other. Then have students write the appropriate math sentence on the line.

B. Background

Oklahoma farmers produce the sixth largest crop of peanuts in the United States. Most peanut farms are located in the southern part of the state.

Peanuts grow underground. The peanut plant is a vine. To harvest a peanut plant, the farmer cuts the main taproot and pulls the plant gently from the soil. He leaves the plants lying in the field for a few days to dry, then takes the peanut pods from the plants with a machine called a "combine."

Peanuts are very nutritious. They contain protein and are rich in Vitamin B complex (for strong muscles and tissues). They are delicious and can be used in soup, salads, puddings and breads. Even the shells are useful. They can be crushed and spread in the garden as mulch or mixed with baking soda to make kitty litter.

Source: Oklahoma Peanut Commission

C. Resources

Books

Barden, Helen, *Busy Little Gardener*, Jelly Bean, 1990.
Gibbons, Gail, *Farming*, Holiday House, 1988.
Walker, Lois, *Get Growing*, John Wiley & Sons, 1991.
Wilkes, Angela, *Growing Things*, EDC, 1984.

Additional Resources

National Peanut Council, 101 S. Peyton St., Alexandria, VA 22314, (703) 838-9500.

"Peanuts, A Learning Experience for Preschool Children" Oklahoma Peanut Commission, Box D, Madill OK 73446 (educational unit for preschool children, prepared by Mrs. Sunny Stephens).

D. Evaluation

The answers are as follows: 3 > 2; 1 < 3; 5 > 4; 4 = 4; 3 < 4; 4 < 6.

E. Related Activities

1. Make peanut butter treats in class. The following recipe will make one treat.

Peanut Butter Treats

1 t. peanut butter
1 t. instant nonfat dried milk
1/2 t. honey
1 t. wheat germ
1/2 t. dried peaches or raisins
1 t. pecans or walnuts (cptional)

Mix ingredients in a five-ounce paper cup. Eat and enjoy!

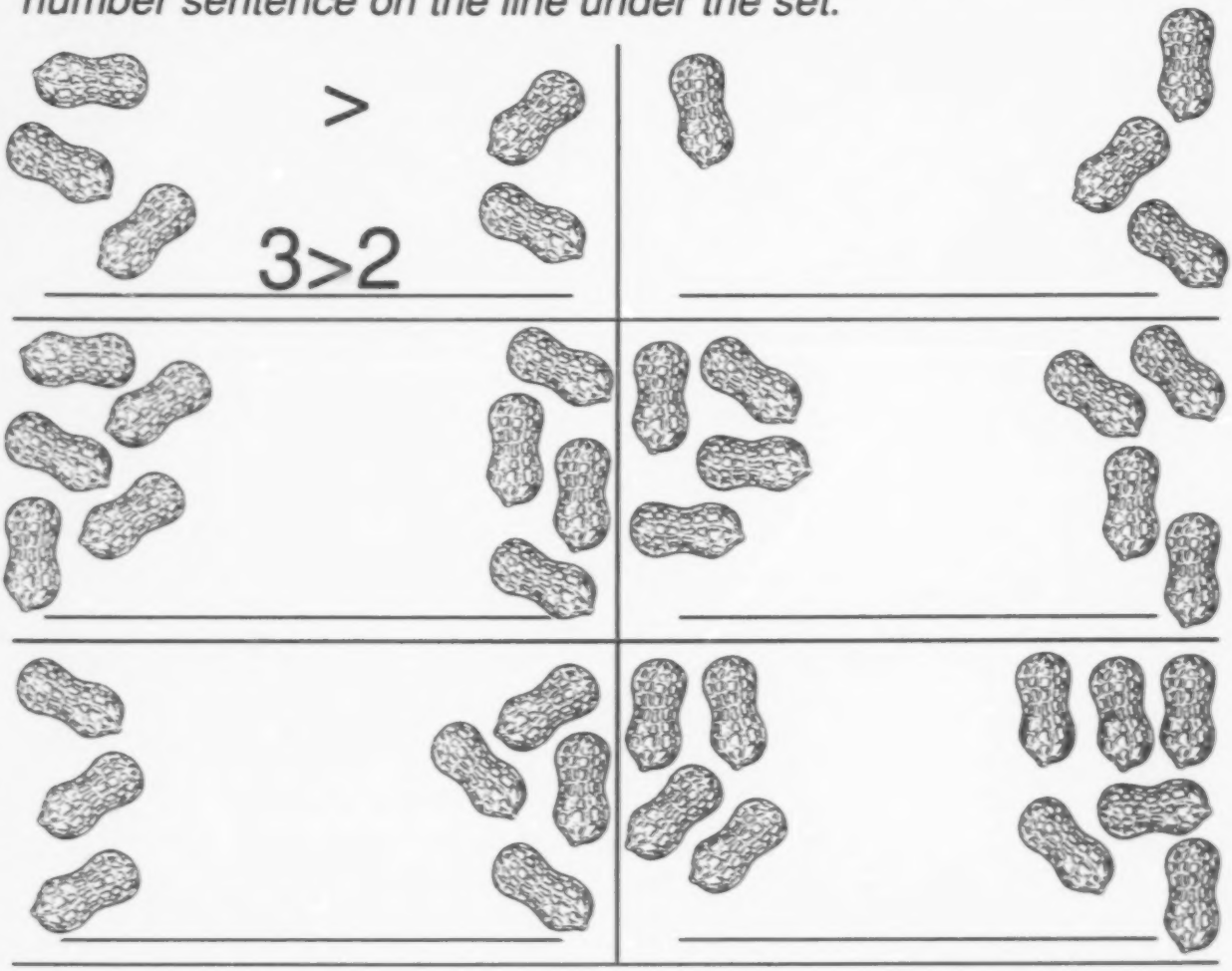
2. Have students divide up into pairs. Provide each pair with the following items: Ten peanuts; the symbol ">" printed on an index card; the symbol "<" printed on an index card, and the symbol "=" printed on an index card. Have the students create peanut math problems by physically changing the number of peanuts in each group and placing the correct sign between them to express math ideas. Students should write down the number problems on paper and turn them in to you. After a designated number of problems have been created, students may divide the peanuts evenly and eat them.

3. Crush peanut shells with a rolling pen and glue them within the outline of a peanut or other shape to make textured pictures.

Name _____

Peanut Patch

Count each set of peanuts. Write the symbol for greater than (>), less than (<), or equal to (=) between the sets. Write the number sentence on the line under the set.



Draw your own peanut problem. Write the number sentence.

_____

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SEEDLINGS

M 19

SUBJECT: Mathematics - Metric

GRADES: 1-2

CONCEPT: I

COMMODITY: Horticulture

LEARNER OUTCOME

Grade One: IX. B. The student will learn to measure objects with standard and nonstandard units.

LEARNER OBJECTIVE

The student will measure seedlings, using the metric system as the measuring tool.

LESSON

A. Step-by-Step Instructions

1. Have students grow seedlings from bean or tree seeds (use silver maple "helicopter" seeds or other seeds abundant in your area in the spring).
2. After the plants have appeared above the soil, discuss the definition of the term "seedling." Accept all reasonable answers (Webster's definition: "1)horticulture, a plant grown from seed; 2)forestry, any young tree under three feet in height.")
3. Have students measure seedlings with centimeter rulers at the same time every day for two weeks and graph their measurements by coloring in the appropriate area on the graph or using strips of colored paper.

B. Background

Trees are plants. They grow from seeds that fall from large trees. The tiny tree that first appears is called a seedling.

Each seed will grow only one kind of plant. A seed from an elm tree will not grow anything but an elm seedling. An elm seedling will not grow from any kind of seed but an elm seed.

All plants first come up as seedlings. The plant uses the food from the seed until it begins to grow roots, which absorb food from the soil.

Seedlings need soil, air, light and water to grow. Once the seedling has grown into a mature plant, it will produce seeds, so more seedlings can grow.

Source: OSU Cooperative Extension Service, Horticulture Department

C. Resources

Books

Carle, Eric, *Tiny Seed,* Picture Book Studio, 1987.
Coats, Laura Jane, *The Almond Orchard,* Macmillan, 1991.
Demi, *The Empty Pot,* Trumpet, 1990.
Ehlert, Lois, *Planting a Rainbow,* Harcourt, Brace, Jovanovich, 1991.
Hiscock, Bruce, *Big Tree,* Macmillan, 1991.

Additional Resources

Children's Gardens: A Field Guide for Teachers, Parents and Volunteers, Common Ground Garden Program, 2615 S. Grand Ave., Ste. 400, Los Angeles, CA 90007 (a gardening manual, $10, plus $2.50, shipping, make checks payable to LA Harvest).

D. Evaluation

Does the student know that the tiny plant that grows from a seed is called a seedling?

E. Related Activities

1. *Seed Collection* - Have students collect seeds from outside, glue them to poster board and label them.
2. Vary growing conditions for seedlings, and compare the growth patterns.

Name _____

Seedlings

Measure your seedling with a centimeter ruler. Record the height on the growth chart (graph).

cm	day 1	day__	day__	day__	day__	day__	day__	day__
17								
16								
15								
14								
13								
12								
11								
10								
9								
8								
7								
6								
5								
4								
3								
2								
1								

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TATER TOTS

M 20

SUBJECT: Mathematics

GRADES: 1-2

CONCEPT: III

COMMODITY: Horticulture

LEARNER OUTCOME

Grade One: IX. A. The student will make and use estimates of measurement. B. The student will measure objects with non-standard and standard units.

LEARNER OBJECTIVE

Using a potato shape, students will practice taking measurements and estimating volume.

LESSON

A. Step-by-Step Instructions (No Student worksheet is needed with this lesson.)

1. Have students tear potato shapes from brown construction paper.
2. Show students how to measure the potato shape in inches and centimeters. Have them fill in the potato shape with unifix cubes to measure volume. Have students estimate how many cubes it will take to fill the potato shape. Then have them fill it in with cubes and record the data.
3. Have students decorate the potato shape with construction paper and other media to create "potato kids" (tater tots).

B. Background

Potatoes grow best in cool weather. They grow underground. Potato farmers use machines to harvest their crops. Potatoes are a truck crop. A truck crop is one that is grown on a farm and taken to the market by truck.

Before they go to market, potatoes are graded according to size and quality. The price of the potato depends on how it looks and how much it weighs.

At one time people believed that potatoes could remove warts. A raw potato would be rubbed over the wart, then the potato would be buried. If the potato rotted, the warts would disappear!

Source: OSU Cooperative Extension Service

C. Resources

Books

Amery, Heather, and Annie Civardi, *The Know How Book of Print and Paint*, EDC, 1977.

Bourgeois, Paulette, *The Amazing Potato Book*, Addison Wesley, 1991.

de Paola, Tomie, *Jamie O'Rourke And The Big Potato*, Putnam, 1992.

Ehlert, Lois, *Growing Vegetable Soup*, Harcourt, Brace, Jovanovich, 1988.

McDonald, Megan, *The Potato Man*, Orchard, 1991.

Selsam, Millicent E., *More Potatoes!* Harper & Row, 1972.

Watts, Barrie, *Potato*, Silver-Burdett, 1987.

D. Evaluation

Did the students enjoy the hands-on activity involving mathematical practices? Did they complete the activity by making a tater tot?

E. Related Activities

1. Estimate, then count, the number of eyes in a seed potato.
2. Using a balance scale, weigh the potato.
3. Create potato parents to make a complete family for the tater tots.
4. Have students use the potato writing page to copy recipes or to list ways in which people eat potatoes.

TIME TO EAT

M 21

SUBJECT: Mathematics

GRADES: 1-2

CONCEPT: I

COMMODITY: Miscellaneous

LEARNER OUTCOME

Grade One IX. F. The student will learn to tell time to the hour and half hour.

LEARNER OBJECTIVE

Students will be able to explain why breakfast is an important meal.

LESSON

A. Step-by-Step Instructions

1. Review with students how to tell time on the hour and the half hour.
2. Put examples of supper time clocks and breakfast time clocks on the board. Show students how to figure out how many hours pass between supper and breakfast.
3. Discuss the following questions with your students: How many hours usually pass between breakfast and lunch? Lunch and supper?
4. Share the background material with students, then have them complete the student worksheet.

B. Background

Breakfast is the most important meal of the day. You need to eat a nutritious breakfast so you can be alert and energetic for the day. Breakfast should provide one-fourth to one-third of your daily nutritional needs.

You should always try to eat at least something for breakfast. It doesn't have to be the traditional toast or cereal. Peanut butter sandwiches, yogurt, leftover pizza and applesauce all make nutritious breakfasts.

Breakfast is named for the two words "break" and "fast." A fast is a period of time when you go without eating. Your morning meal breaks your overnight fast.

You go without food for several hours between supper and breakfast. That's why it's so important for you to eat breakfast. You need breakfast to give your body energy again. Just like a car needs gas and a fire needs wood, your body needs food to keep it going.

Source: OSU Cooperative Extension Service, Nutritional Sciences

C. Resources

Books

Balan, Bruce, *The Cherry Migration*, Green Tiger Press, 1988.
Ehlert, Lois, *Growing Vegetable Soup*, Harcourt, Brace, Jovanovich, 1991.
Hall, Donald, *The Ox Cart Man*, Viking, 1979.
Kovalski, Maryann, *Pizza for Breakfast?* Morrow Junior Books, 1990.
Schmidt, Karen, *The Gingerbread Man*, Scholastic, 1985.

Additional Resources

"Food for America," National FFA Supply Service, 5632 Mt. Vernon Memorial Highway, Alexandria, VA 22309 (teaching guide and activities book, $7.50 per kit).

D. Evaluation

Students should be able to draw hands in the appropriate places on the clocks. They should also be able to count hours accurately from meal to meal.

E. Related Activities

1. Ask students to think of other non-traditional nutritious foods for breakfast. Discuss how their favorite foods are a combination of the four groups. Have students tell their favorite breakfasts.
2. Have students list or tell the food groups represented in a piece of pizza.
3. Design clock faces to represent your class time schedule. For example, draw a clock showing 10:00 and label it "morning recess."

Name _____

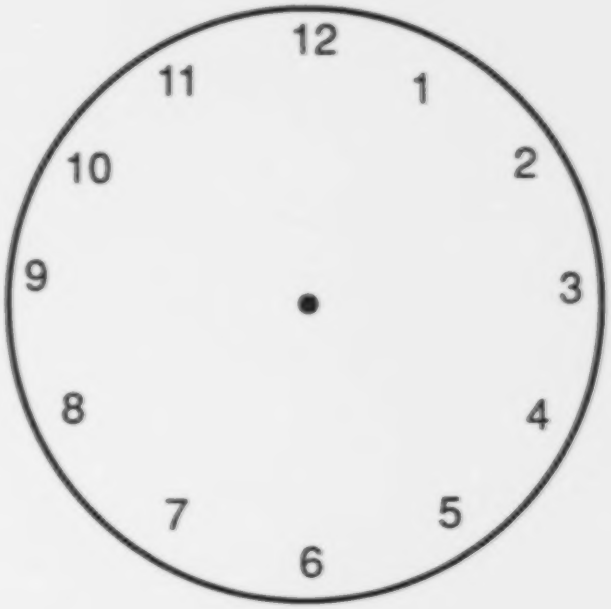
Time to Eat

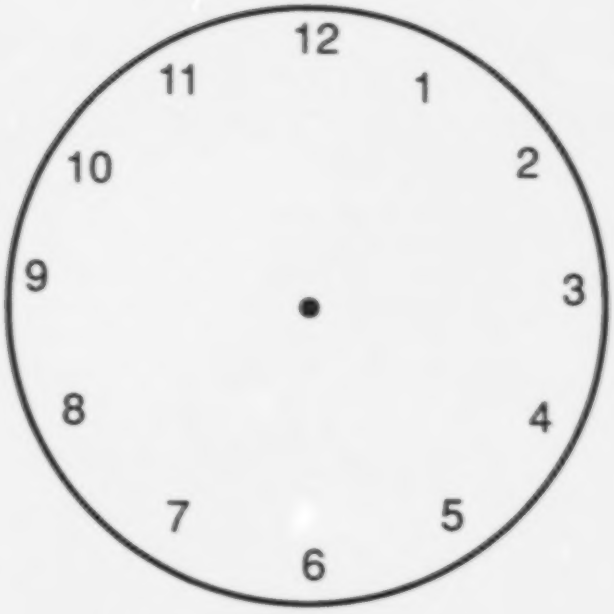
Breakfast gets you going in the morning after a long night with no food energy for your body.

SUPPERTIME

Draw hands on the clock to show the time you ate supper last night.

_____:_____p.m.





BREAKFAST TIME

Draw hands on the clock to show the time you ate breakfast Ithis morning.

_____:_____a.m.

Count the hours from the supper clock to the breakfast clock. How long between supper and breakfast.

_____hours

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PUMPKINS BY THE POUND M 22

SUBJECT: Mathematics GRADE: 2

CONCEPT: II COMMODITY: Horticulture

LEARNER OUTCOME

Grade Two: IX. A. The student will make and use estimates of measurement.
B. The student will measure objects with standard and nonstandard units.

LEARNER OBJECTIVE

Students will experience weight and perimeter through a hands-on math lesson, using various sizes of pumpkins.

LESSON

A. Step-by-Step Instructions

1. Bring several pumpkins to class and set them out in random order. Ask students in what season of the year do we find pumpkins for sale, and what do we use them for?
2. Introduce the terms ***weight*** (a measure of the heaviness of an object) and ***perimeter*** (the measure of the whole outer boundary of a body or figure).
3. Have students lift the pumpkins one by one and estimate their weights. Then have students arrange the pumpkins according to their weights--from the lightest to the heaviest.
4. Pass out student worksheets. Have students weigh the pumpkins and record their findings in pounds and kilograms.
5. Have students estimate the perimeter of each pumpkin, using string to measure around the approximate center of each. Instruct students to mark on the string, or cut the string where it meets the other end.
6. Have students lay the strings on yard- or meter sticks to get the perimeter of each pumpkin. Then have them record their measurements on the worksheet.

B. Background

Pumpkins come in all sizes and shapes, from minipumpkins, the size of apples, to giant ones weighing over 200 pounds. Some pumpkins are gray or pale green, but most are yellow or orange.

Pumpkin flowers are large and yellow. Some kinds of pumpkins are grown for cattle to eat. Cucumbers, squash, melons and gourds are all related to the great pumpkin.

Source: OSU Cooperative Extension Service, Horticulture Department

C. Resources

Books

Delton, Judy, *Peewee Scouts #5: Grumpy Pumpkins,* Dell Young Yearling, 1989.
Dooley, Fern Pacoe, and Woodson, Jack, *Joey's Ghost,* Broadman, 1982.
King, Elizabeth, *Pumpkin Patch,* Dutton, 1990.
Rockwell, Anne, *Apples and Pumpkins,* Macmillan, 1989.
Titherington, Jeanne, *Pumpkin, Pumpkin,* Mulberry, 1986.

D. Evaluation

Were the students able to measure and compare the pumpkins? Did they enjoy the activity? A teacher-created answer sheet would be best suited for checking the student worksheet.

E. Related Activities

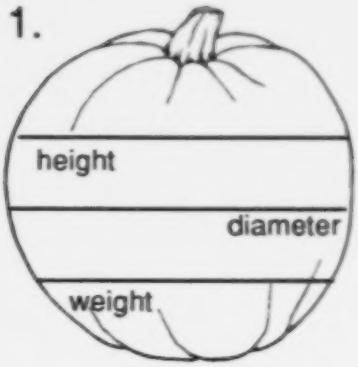
1. Create ***string graphs.*** Have students cut strings to represent the data they have collected, organize them according to length, and glue them to sturdy construction paper.
2. Introduce the abbreviation for pounds ("lbs.") and the pound symbol ("#").
3. Read "Cinderella" to the class and discuss how pumpkins are used in that story.

Name _____

Pumpkins by the Pound

Measure and weigh several pumpkins. Record the facts below.

1.



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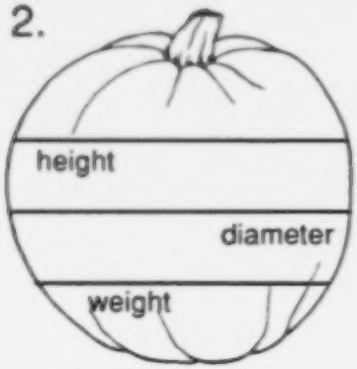

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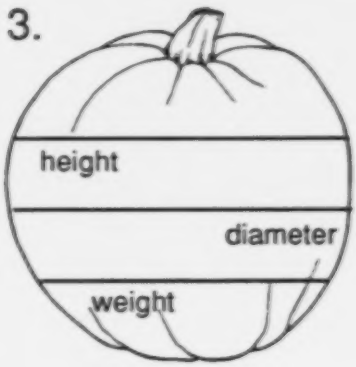

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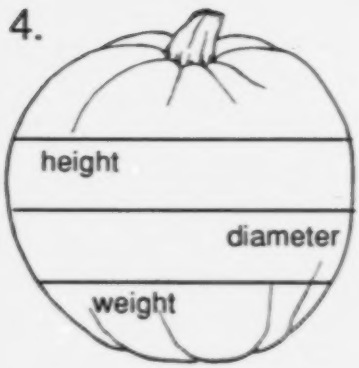

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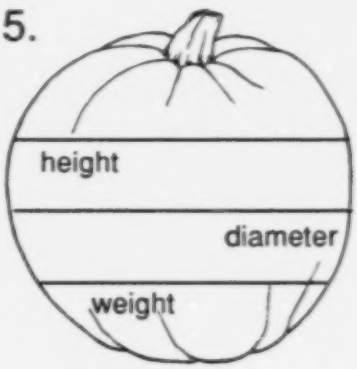
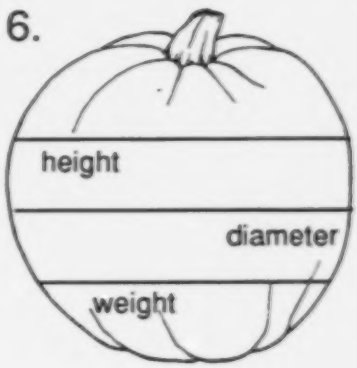


6.



1. *Which pumpkin is biggest?*_____
2. *Which pumpkin weighs the most?*_____
3. *Does the biggest pumpkin weigh the most?*_____
4. *Does the smallest pumpkin weigh the least?*_____
5. *Which two pumpkins are closest in size?*_____
6. *Which two pumpkins are closest in weight?*_____

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Glossary

The following terms are used in the K-2 lessons. While many of the terms may have additional definitions, those given most closely and simply define the way the word is used in the lessons.

alfalfa - a plant having compound leaves and clusters of small purple flowers, widely cultivated for forage.

aquaculture - fish farming.

barn - a building on the farm where animals stay when it is cold and where farm equipment is stored.

beef - the flesh of a cow, steer, heifer or bull.

beef cattle - type of cattle raised mainly for meat.

beef steer - a castrated bull calf, generally one intended for use as meat.

beneficial insect - an insect that helps farmers, either by pollinating plants or by eating bugs that are harmful.

boar - a male pig.

bovine - a family of animals which includes cattle and oxen.

branch - a secondary woody stem or limb growing from the trunk or main stem of a tree, bush or shrub.

bull - the male of any bovine species.

butcher - person at the supermarket who cuts meat into pieces for selling. Sometimes called a "meat cutter."

buy - to get something by trading money for it.

calf - the young of the bovine family.

carbon dioxide - a gas which is harmful to humans and animals. Humans and animals breathe carbon dioxide out and plants breathe it in. Carbon dioxide is also formed in the air by burning petroleum, wood, coal and other carbon fuels.

carcass - animal after the hide, head, hooves and internal organs are removed to make it ready for the supermarket.

cattle - live animals held as property or raised for some use, usually mature bovine animals, such as cows, bulls and steers.

chick - the young of the chicken family.

chlorophyll - the green coloring in a plant which helps plants make food.

clover - a valuable pasture plant with compound leaves and tight heads of small flowers.

cluster - a group of something.

combine - a power-operated harvesting machine that cuts, threshes and cleans grain.

cotyledons - The part of a seed that supplies energy for the baby plant until it begins to make its own food.

cow - the mature female of any bovine animal.

crops - cultivated plants or agricultural produce, such as grain, vegetables or fruit.

cross timbers - a region where different types of plants mix, such as the post oak and blackjack oak forest area in the east central part of Oklahoma, dividing forest from range or pasture lands.

crown - the upper part of a tree, including the leaves and living branches.

dairy cattle - type of cattle raised mainly for its milk.

dairy products - products made from milk.

dormant - a period of rest.

embryo - the baby plant inside the seed which grows into the new big plant. When the seed is soaked in water, the seed coat will soften and let go, allowing the embryo to push through and grow. (the term as used with animals is not discussed in this unit.)

expand - grow larger.

expense - money that is paid out.

ewe - a female sheep.

farm - the fields, buildings, animals and personnel used for the purpose of agricultural products.

feedlot - a place where cattle are kept in a small space and fed special food so they will grow larger.

fleece - the wool of a sheep cut once a year and spun into yarn. The wool is used to make sweaters, caps, coats, socks, blankets and other coverings.

forestry - the management of forest lands.

gander - a male goose.

germinate - to begin to grow. When a seed gets light, air and water, the stem and root of the plant emerge from the seed.

goose down - fine, soft, fluffy feathers on young birds and under the outer feathers on adult birds.

gosling - the young of the goose family.

grain - the seeds of cereal grasses (wheat, oats, barley, etc.)

grass - a kind of plant with narrow leaves, hollow stems and spikes of flowers, which sheep, goats, horses, and cattle can eat.

grassland - an area where mostly grass grows, such as a prairie or meadow.

grazing - when animals eat grass in the field.

groundwater - water that soaks into the soil and flows underground.

grow - to increase in size by natural process.

hamburger - ground beef.

hardwoods - trees that lose their leaves all at once.

harvest - to gather a crop.

hay - grass or other plants cut, dried and baled for animals to eat.

heifer - a young cow, especially one that has not yet given birth to a calf.

hen - an adult female chicken.

herd - a number of large animals assembled together.

hog - a pig weighing over 120 pounds.

homogenize - method used to break up the fat in milk so it won't rise to the top.

husk - a shell or outer layer of many fruits or nuts, as of an ear of corn or nut.

hydroponics - a way of growing plants in nutrient-rich liquid instead of soil.

income - money earned in exchange for working or selling goods or property.

incubate - to keep eggs warm so they will hatch.

lanolin - a yellowish-white fatty substance found in wool and used to make soaps, cosmetics and ointments.

loom - a machine or device from which cloth is produced by interweaving thread or yarn a right angles.

meat - the flesh of an animal that can be eaten.

milk - a white liquid produced by cows to feed their off spring, or in the case of dairy cows, used to produce dairy products.

mutton - the flesh of fully grown sheep used for food.
natural resource - something that occurs in nature and is valuable to man.

order - a logical or comprehensible arrangement.

oxygen - a gas in the air and in the water which all living things must have to live. Oxygen is released into the air by plants.

packing plant - place where animals are killed and made ready for the supermarket.

pasteurize - the process used to destroy harmful organisms in milk.

pasture - a field of grass where animals live and eat.

peg - the flower stalk of a peanut plant on which peanuts are formed. Although the flower grows above ground, the peg is pulled underground by gravity.

perimeter - the outer limits of an area.

pork - the flesh of a pig or hog used for food.

poultry - domestic fowl, such as chickens, turkeys, ducks or geese, raised for meat or eggs.

price - the amount of money paid for something.

ranch - a large farm on which large herds of cattle, sheep or horses are raised.

raw milk - milk when it first comes out of the cow, before it is pasteurized and homogenized.

roast - a cut of meat suitable for roasting.

rooster - the adult male of the chicken family.

roots - the underground portion of a plant that serves as support, draws food and water from the surrounding soil, and stores food.

save - to keep something (money), instead of spending, wasting or losing it.

seed - a protective case surrounding a new plant.

seedling - a young plant grown from a seed.

sell - to trade something for money.

shear - to remove the wool of the sheep by cutting or clipping.

sodium chloride - a colorless crystalline compound used as a food preservative and seasoning.

softwoods - trees that have leaves or needles all year and lose them only a few at a time.

soil - naturally-occurring mixture of minerals, organic matter, water and air, which forms the surface of the land.

spend - to use up or pay out something.

spinning - process of twisting and pulling wool or other materials into yarn.

spinning wheel - a wheel used for spinning materials into yarn.

steak - a slice of meat cut across the muscle grain and usually broiled, grilled or fried.

swine - the family of mammals to which boars, sows, and pigs belong.

taproot - the main root of a plant, growing straight downward from the stem.

texture - a grainy, fibrous, woven or dimensional quality as opposed to a uniformly flat, smooth surface.

thallophytic plant - a plant-like organism of the division which includes algae fungi and bacteria.

timberland - forested land considered commercial.

truck - a vehicle that has many uses on the farm. Refrigerated milk trucks carry milk from the dairy farm to the processing plant. Trucks also carry the milk and other farm products to the grocery store. Farmers and ranchers use trucks to carry feed and cattle from place to place. The trucks also help the farmer carry feed from town and cattle to town.

trunk - the main woody axis of a tree.

twig - a small branch or slender shoot, as of a tree or shrub.

vitamin - natural substances that plants and animals need to grow.

warp threads - lengthwise threads in woven fabric.

water - a clear liquid all plants and animals need to live.

water cycle - the continuous movement of water, from Earth to atmosphere and back again.

watercress - a plant grown in freshwater ponds and streams, used in salads and as a garnish.

weft threads - crosswise threads in woven fabric.

weight - a measure of the heaviness or mass of an object.

wheat - a cereal grass from which flour, spaghetti, macaroni and other products are made. Hard red winter wheat is the kind of wheat most often grown in Oklahoma.

windbreak - a hedge, fence or row of trees planted so it will break the force of the wind.

Ag in the Classroom is jointly administered by the Oklahoma 4-H Youth Development Department, Cooperative Extension Service and the Oklahoma Department of Agriculture